

**Head TSL parameters at 5750 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.1 ± 6 %	5.08 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

**SAR result with Head TSL at 5750 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>80.5 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>22.7 W/kg ± 19.5 % (k=2)</b>

**Head TSL parameters at 5800 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.0 ± 6 %	5.11 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

**SAR result with Head TSL at 5800 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>81.9 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>23.1 W/kg ± 19.5 % (k=2)</b>

**Appendix (Additional assessments outside the scope of SCS 0108)**
**Antenna Parameters with Head TSL at 5200 MHz**

Impedance, transformed to feed point	48.6 $\Omega$ - 5.3 j $\Omega$
Return Loss	- 25.1 dB

**Antenna Parameters with Head TSL at 5250 MHz**

Impedance, transformed to feed point	47.7 $\Omega$ - 4.1 j $\Omega$
Return Loss	- 26.2 dB

**Antenna Parameters with Head TSL at 5300 MHz**

Impedance, transformed to feed point	46.9 $\Omega$ - 2.2 j $\Omega$
Return Loss	- 28.0 dB

**Antenna Parameters with Head TSL at 5500 MHz**

Impedance, transformed to feed point	50.6 $\Omega$ - 4.0 j $\Omega$
Return Loss	- 28.0 dB

**Antenna Parameters with Head TSL at 5600 MHz**

Impedance, transformed to feed point	53.6 $\Omega$ + 1.2 j $\Omega$
Return Loss	- 28.6 dB

**Antenna Parameters with Head TSL at 5750 MHz**

Impedance, transformed to feed point	51.4 $\Omega$ - 0.3 j $\Omega$
Return Loss	- 37.3 dB

**Antenna Parameters with Head TSL at 5800 MHz**

Impedance, transformed to feed point	51.2 $\Omega$ - 2.2 j $\Omega$
Return Loss	- 32.0 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.201 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
-----------------	-------

**DASY5 Validation Report for Head TSL**

Date: 19.06.2023

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5250 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz, Frequency: 5800 MHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.53$  S/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.60$  S/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5300$  MHz;  $\sigma = 4.67$  S/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5500$  MHz;  $\sigma = 4.89$  S/m;  $\epsilon_r = 35.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5600$  MHz;  $\sigma = 4.97$  S/m;  $\epsilon_r = 35.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.08$  S/m;  $\epsilon_r = 35.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>,Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.11$  S/m;  $\epsilon_r = 35.0$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

## DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.8, 5.8, 5.8) @ 5200 MHz, ConvF(5.5, 5.5, 5.5) @ 5250 MHz, ConvF(5.49, 5.49, 5.49) @ 5300 MHz, ConvF(5.25, 5.25, 5.25) @ 5500 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.08, 5.08, 5.08) @ 5750 MHz, ConvF(5.01, 5.01, 5.01) @ 5800 MHz; Calibrated: 07.03.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 19.12.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan,****dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 76.08 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 27.3 W/kg

**SAR(1 g) = 7.92 W/kg; SAR(10 g) = 2.27 W/kg**

Smallest distance from peaks to all points 3 dB below = 6.9 mm

Ratio of SAR at M2 to SAR at M1 = 70.9%

Maximum value of SAR (measured) = 18.0 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,****dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 75.90 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 26.7 W/kg

**SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.29 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 71.8%

Maximum value of SAR (measured) = 18.0 W/kg



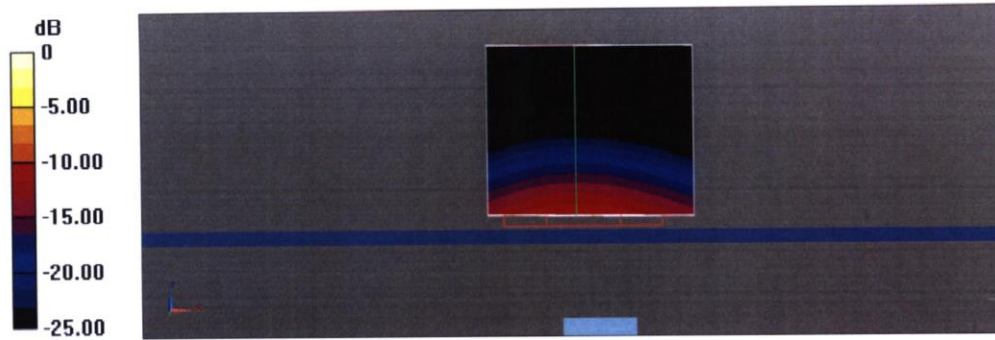
**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 76.02 V/m; Power Drift = 0.08 dB  
Peak SAR (extrapolated) = 28.5 W/kg  
**SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.35 W/kg**  
Smallest distance from peaks to all points 3 dB below = 6.8 mm  
Ratio of SAR at M2 to SAR at M1 = 70.8%  
Maximum value of SAR (measured) = 18.8 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 75.86 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 32.2 W/kg  
**SAR(1 g) = 8.56 W/kg; SAR(10 g) = 2.42 W/kg**  
Smallest distance from peaks to all points 3 dB below = 7.2 mm  
Ratio of SAR at M2 to SAR at M1 = 67.3%  
Maximum value of SAR (measured) = 20.1 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 76.37 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 30.3 W/kg  
**SAR(1 g) = 8.38 W/kg; SAR(10 g) = 2.38 W/kg**  
Smallest distance from peaks to all points 3 dB below = 7.2 mm  
Ratio of SAR at M2 to SAR at M1 = 68.5%  
Maximum value of SAR (measured) = 19.6 W/kg

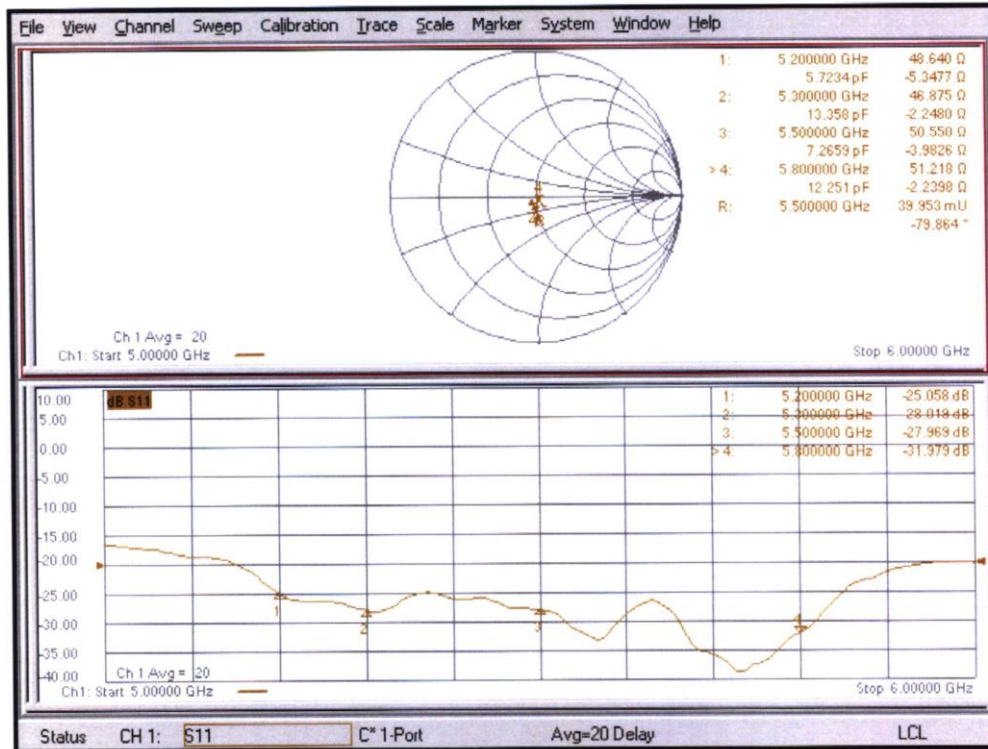
**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 73.46 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 30.9 W/kg  
**SAR(1 g) = 8.07 W/kg; SAR(10 g) = 2.28 W/kg**  
Smallest distance from peaks to all points 3 dB below = 7.2 mm  
Ratio of SAR at M2 to SAR at M1 = 66.6%  
Maximum value of SAR (measured) = 19.3 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 74.09 V/m; Power Drift = 0.05 dB  
Peak SAR (extrapolated) = 31.5 W/kg  
**SAR(1 g) = 8.22 W/kg; SAR(10 g) = 2.32 W/kg**  
Smallest distance from peaks to all points 3 dB below = 7.2 mm  
Ratio of SAR at M2 to SAR at M1 = 66.5%  
Maximum value of SAR (measured) = 19.6 W/kg

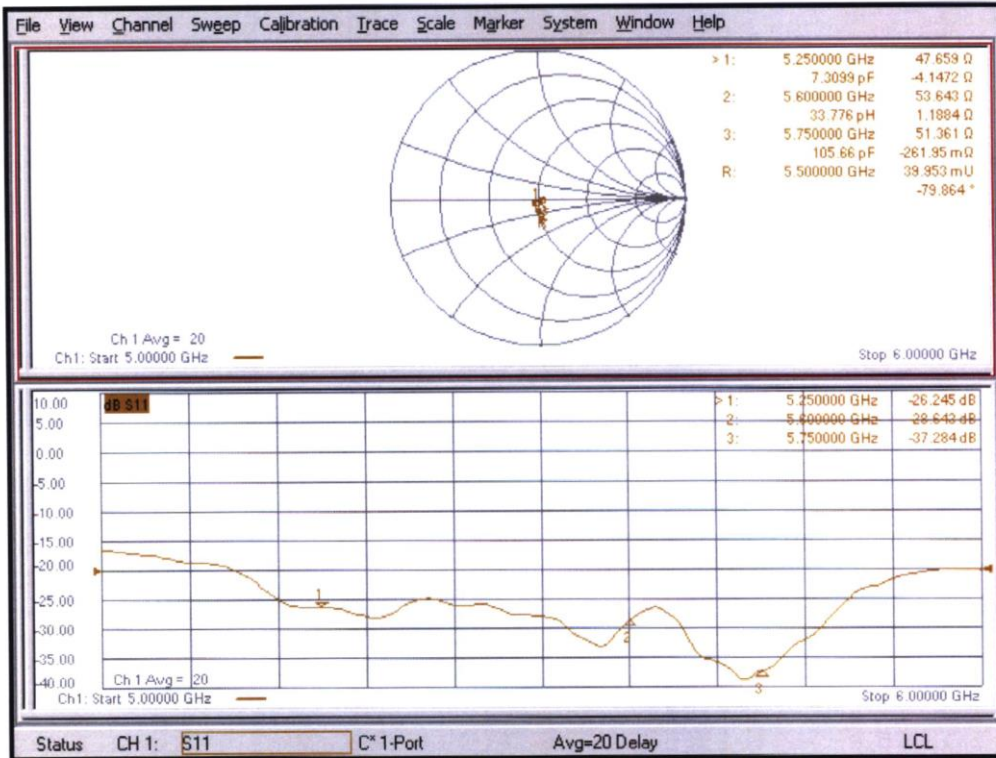


0 dB = 20.1 W/kg = 13.03 dBW/kg

**Impedance Measurement Plot for Head TSL (5200, 5300, 5500, 5800 MHz)**



Impedance Measurement Plot for Head TSL (5250, 5600, 5750 MHz)



## ANNEX I G-Sensor Triggering Data Summary

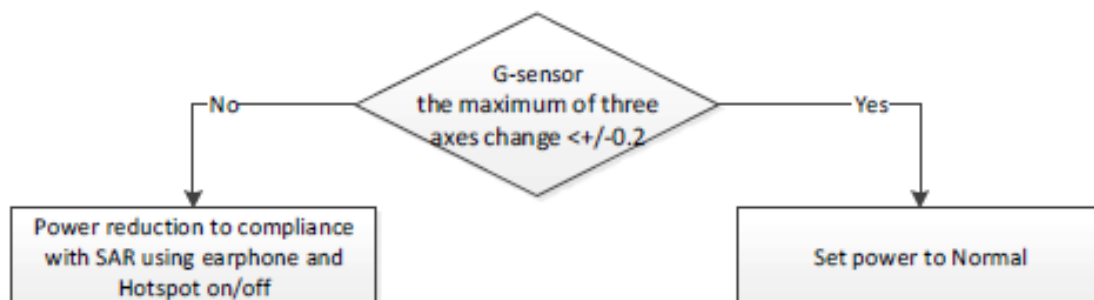
In order to judge whether the mobile phone is on the person's body, the method of using G-sensor is proposed as follows.

First, G-sensor can judge if the phone is "moving" or not by axes x, y, z variation. If we set the judgment conditions to be sensitive enough, then all of user cases which phone proximity to human body are in "moving".

Main user cases of Mobile phone and the maximum of three axes(x, y, z) change from G-sensor is as below table:

User Case	Making call and beside head and hand	Browsing	In people's pockets(Sit still)	Leaving the body and putting on a stationary table	Leaving the body and putting in a moving place
The maximum of three axes change from G-sensor	>+/-0.5	>+/-0.5	>+/-0.5	+/-0.05~0.1	>+/-0.5
Power reduction is on or off	On	On	On	Off	On

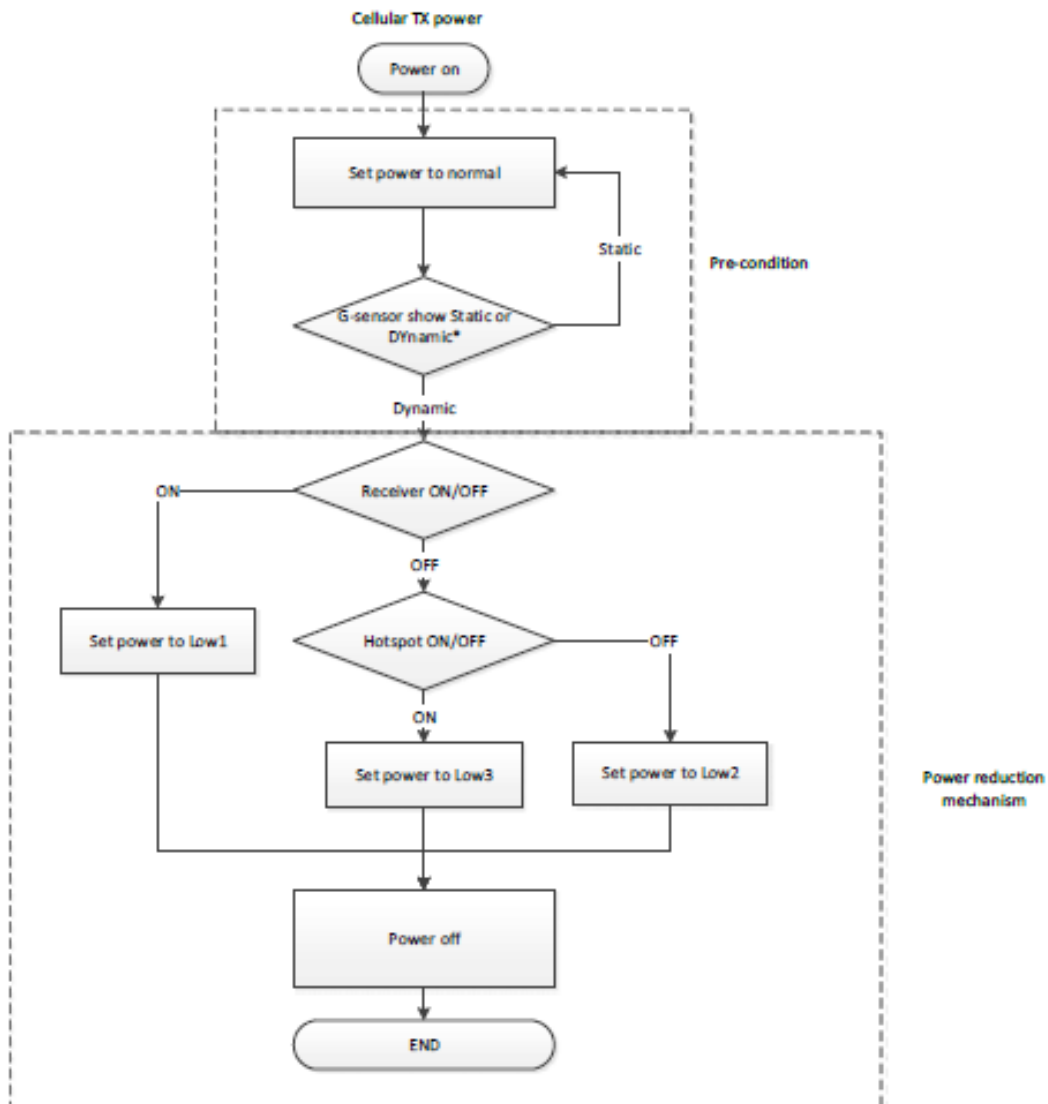
We choose the maximum of three axes change <+/-0.2 as judgment conditions. Detect interval is 200ms.



When the maximum of three axes change <+/-0.2, the user case **MUST be** mobile phone stay away from the body, but if it is >+/-0.2, it **MAY be** on the person's body, power reduction is on.



Detail Power reduction mechanism



\*When it is in "static" state, the detection frequency is 200ms. When it is In "Dynamic" state, the detection frequency is 30s.

## ANNEX J Spot check and newly add bands

### J.1 Dielectric Performance and System Validation

Table J.1-1: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Frequency	Permittivity $\epsilon$	Drift (%)	Conductivity $\sigma$ (S/m)	Drift (%)
2024-2-6	1900MHz	39.31	-1.72	1.374	-1.86
2024-2-25	2600MHz	38.815	-0.50	1.985	1.28
2024-2-21	3500 MHz	37.413	-1.36	2.895	-0.52
2024-2-28	3700 MHz	37.354	-0.92	3.105	-0.48

Table J.1-2: System Validation of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value(W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2024-2-6	1900MHz	21	40.4	20.52	39.64	-2.29%	-1.88%
2024-2-25	2600MHz	25.1	55.2	25.3	55.5	0.88%	0.58%
2024-2-21	3500 MHz	25.2	66.9	24.7	65.4	-1.98%	-2.24%
2024-2-28	3700 MHz	24.7	67.8	25.3	68.9	2.43%	1.62%

### J.2 Measurement results - Spot check

Band	Frequency		Test Position	Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g)( W/kg)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift (dB)
	Ch.	MHz								
WLAN2.4G	6	2437	Left Cheek	17.34	18.50	0.502	<b>0.66</b>	0.242	<b>0.32</b>	0.03
N77_L	633334	3500.01	Right 10mm	18.10	19.50	0.634	<b>0.88</b>	0.243	<b>0.34</b>	-0.07

### J.3 Reported SAR Comparison-Spot check

Table J.3: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): original	Reported SAR 1g (W/Kg): spot check
Head	WLAN2.4G	<b>1.19</b>	<b>0.66</b>
Body	N77_L	<b>1.00</b>	<b>0.88</b>

Note: All the spot check results are less than the original result. So it shares all the original results.

### J.4 Conducted Output Power-Newly add bands

#### The tune up power for newly add bands (dBm)

Band	ANT	Standalone			WIFI ON/ENDC/ULCA		
		Hotspot off/on +Receiver on	Hotspot on +Receiver off	Hotspot off +Receiver off	Hotspot off/on +Receiver on	Hotspot on +Receiver off	Hotspot off +Receiver off
		DSI0	DSI1	DSI2	DSI3	DSI4	DSI5
LTE Band7	4	19	19	19.5	17.5 <sup>[1]</sup>	17.5 <sup>[1]</sup>	17.5 <sup>[1]</sup>
LTE Band25	1	\	\	\	19 <sup>[1]</sup>	19 <sup>[1]</sup>	20 <sup>[1]</sup>
N25	2	19.5	22.5	25.5	17.5 <sup>[1]</sup>	20.5 <sup>[1]</sup>	22.5 <sup>[1]</sup>
N7	4	19.5 <sup>[1]</sup>	19.5 <sup>[1]</sup>	19.5 <sup>[1]</sup>	\	\	\
N38	4	19.5 <sup>[1]</sup>	19.5 <sup>[1]</sup>	20.5 <sup>[1]</sup>	\	\	\

Note<sup>[1]</sup>: Tune up for variant product.

#### LTE B7 ANT4-DSI 3/4/5

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	256QAM
5MHz	1RB-High (24)	2567.5 (21425)	15.87	16.01	15.57	16.04
		2535 (21100)	15.90	15.94	15.96	15.79
		2502.5 (20775)	15.74	15.62	15.67	15.98
	1RB-Middle (12)	2567.5 (21425)	15.68	15.57	15.70	15.97
		2535 (21100)	15.89	16.06	16.22	15.51
		2502.5 (20775)	16.00	15.76	15.73	15.89
	1RB-Low (0)	2567.5 (21425)	15.58	15.57	15.86	16.04
		2535 (21100)	15.71	15.91	15.81	15.67
		2502.5 (20775)	15.93	16.01	15.87	15.88
	12RB-High (13)	2567.5 (21425)	15.88	15.75	16.00	15.89
		2535 (21100)	15.51	15.70	15.68	15.89
		2502.5 (20775)	15.87	16.06	15.88	15.67
	12RB-Middle (6)	2567.5 (21425)	15.87	15.81	15.63	15.76
		2535 (21100)	16.11	16.06	15.96	15.62
		2502.5 (20775)	15.69	15.75	15.94	15.87
	12RB-Low (0)	2567.5 (21425)	15.56	15.63	15.63	15.80
		2535 (21100)	15.52	15.87	15.70	15.77
		2502.5 (20775)	16.00	15.79	15.85	15.74
	25RB (0)	2567.5 (21425)	15.92	15.55	15.74	15.69
		2535 (21100)	15.86	15.54	15.88	15.82
		2502.5 (20775)	16.06	15.76	15.97	15.53
10MHz	1RB-High (49)	2565 (21400)	15.69	15.83	15.58	15.97
		2535 (21100)	15.68	16.07	15.67	16.02

		2505 (20800)	15.63	15.80	15.58	15.84
	1RB-Middle (24)	2565 (21400)	15.61	15.65	15.81	15.83
		2535 (21100)	15.83	15.92	15.93	15.77
		2505 (20800)	15.93	15.75	15.74	16.09
	1RB-Low (0)	2565 (21400)	15.79	15.78	16.10	15.92
		2535 (21100)	15.83	15.82	16.03	15.88
		2505 (20800)	16.04	15.93	16.09	15.67
	25RB-High (25)	2565 (21400)	15.91	15.96	15.80	15.82
		2535 (21100)	15.50	15.76	15.86	16.01
		2505 (20800)	15.78	16.14	15.96	15.57
	25RB-Middle (12)	2565 (21400)	15.99	15.61	15.73	15.91
		2535 (21100)	16.10	15.76	15.82	15.58
		2505 (20800)	15.73	15.56	15.85	15.74
	25RB-Low (0)	2565 (21400)	15.55	15.76	15.79	15.69
		2535 (21100)	15.73	15.77	15.63	15.96
		2505 (20800)	15.94	15.89	15.86	15.76
	50RB (0)	2565 (21400)	16.10	15.69	15.78	15.77
		2535 (21100)	15.83	15.71	16.09	15.75
		2505 (20800)	15.91	15.91	15.93	15.75
15MHz	1RB-High (74)	2562.5 (21375)	15.94	16.00	15.81	15.76
		2535 (21100)	15.67	16.01	15.65	15.80
		2507.5 (20825)	15.63	15.81	15.84	15.95
	1RB-Middle (37)	2562.5 (21375)	15.65	15.69	15.78	15.92
		2535 (21100)	16.07	15.98	16.13	15.61
		2507.5 (20825)	15.70	15.94	15.76	15.87
	1RB-Low (0)	2562.5 (21375)	15.56	15.79	16.05	16.02
		2535 (21100)	15.84	15.65	15.79	15.65
		2507.5 (20825)	15.85	15.98	16.00	15.81
	36RB-High (38)	2562.5 (21375)	15.69	15.76	15.66	15.78
		2535 (21100)	15.52	15.66	15.96	15.81
		2507.5 (20825)	15.88	15.85	15.79	15.83
	36RB-Middle (19)	2562.5 (21375)	16.00	15.62	15.63	15.63
		2535 (21100)	16.08	15.92	16.00	15.84
		2507.5 (20825)	15.71	15.71	16.06	15.74
	36RB-Low (0)	2562.5 (21375)	15.79	15.89	15.69	15.58
		2535 (21100)	15.71	15.77	15.69	16.00
		2507.5 (20825)	15.85	15.86	15.83	15.78
75RB (0)	2562.5 (21375)	15.88	15.69	15.74	15.78	
	2535 (21100)	15.66	15.67	15.86	15.80	
	2507.5 (20825)	15.97	15.75	15.70	15.54	
20MHz	1RB-High (99)	2560 (21350)	15.87	15.97	15.72	15.96



		2535 (21100)	15.84	15.97	15.90	15.94
		2510 (20850)	15.80	15.85	15.75	16.02
	1RB-Middle (50)	2560 (21350)	15.78	15.79	15.89	15.92
		2535 (21100)	16.08	16.16	16.15	15.74
		2510 (20850)	15.95	15.91	15.92	16.00
	1RB-Low (0)	2560 (21350)	15.70	15.70	16.01	16.05
		2535 (21100)	15.93	15.87	16.03	15.81
		2510 (20850)	15.95	15.95	16.01	15.78
	50RB-High (50)	2560 (21350)	15.84	15.98	15.90	15.87
		2535 (21100)	15.71	15.80	15.90	15.93
		2510 (20850)	15.89	16.05	15.96	15.79
	50RB-Middle (25)	2560 (21350)	15.99	15.84	15.87	15.84
		2535 (21100)	16.09	16.01	16.04	15.74
		2510 (20850)	15.84	15.75	15.99	15.78
	50RB-Low (0)	2560 (21350)	15.78	15.88	15.76	15.79
		2535 (21100)	15.75	15.88	15.84	16.02
		2510 (20850)	15.96	15.89	15.92	15.71
	100RB (0)	2560 (21350)	16.04	15.74	15.83	15.91
		2535 (21100)	15.88	15.72	16.05	15.87
		2510 (20850)	15.98	15.91	15.89	15.77

**LTE B25 ANT1-DSI 3/4**

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	256QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	17.62	17.83	17.68	17.67
		1882.5 (26365)	17.82	17.90	17.75	17.89
		1850.7 (26047)	17.84	17.81	17.95	18.03
	1RB-Middle (3)	1914.3 (26683)	17.87	17.70	17.80	17.86
		1882.5 (26365)	17.82	18.04	17.89	17.74
		1850.7 (26047)	17.84	17.58	17.63	17.69
	1RB-Low (0)	1914.3 (26683)	17.79	17.59	17.57	17.73
		1882.5 (26365)	17.72	17.72	17.81	17.76
		1850.7 (26047)	18.00	18.09	18.06	17.85
	3RB-High (3)	1914.3 (26683)	17.75	17.85	17.79	17.75
		1882.5 (26365)	17.53	17.80	17.98	18.13
		1850.7 (26047)	17.85	17.74	17.73	17.93
	3RB-Middle (1)	1914.3 (26683)	17.95	17.59	17.84	18.09
		1882.5 (26365)	18.09	17.81	17.78	18.04
		1850.7 (26047)	17.82	17.66	17.47	17.64
	3RB-Low (0)	1914.3 (26683)	17.73	17.76	17.96	18.13
		1882.5 (26365)	17.94	17.90	17.75	17.93

		1850.7 (26047)	17.85	17.73	17.72	17.87	
	6RB (0)	1914.3 (26683)	17.69	17.92	17.80	17.80	
		1882.5 (26365)	17.93	17.66	17.66	17.92	
		1850.7 (26047)	18.13	17.84	17.91	17.92	
3MHz	1RB-High (14)	1913.5 (26675)	17.60	17.89	17.76	17.80	
		1882.5 (26365)	17.77	17.79	17.88	18.01	
		1851.5 (26055)	17.64	17.74	17.77	17.78	
	1RB-Middle (7)	1913.5 (26675)	17.90	17.51	17.87	17.82	
		1882.5 (26365)	18.02	18.09	18.16	17.79	
		1851.5 (26055)	17.59	17.71	17.65	17.70	
	1RB-Low (0)	1913.5 (26675)	17.84	17.64	17.81	17.78	
		1882.5 (26365)	17.63	17.91	18.08	17.77	
		1851.5 (26055)	17.76	18.08	18.14	17.87	
	8RB-High (7)	1913.5 (26675)	17.81	18.02	18.01	17.72	
		1882.5 (26365)	17.56	17.99	17.80	18.07	
		1851.5 (26055)	17.90	17.94	17.79	17.89	
	8RB-Middle (4)	1913.5 (26675)	17.85	17.65	17.98	17.97	
		1882.5 (26365)	17.89	17.96	17.89	17.75	
		1851.5 (26055)	17.54	17.57	17.61	17.89	
	8RB-Low (0)	1913.5 (26675)	17.98	17.65	17.84	18.11	
		1882.5 (26365)	17.79	17.99	17.52	17.70	
		1851.5 (26055)	17.86	17.64	17.81	17.83	
	15RB (0)	1913.5 (26675)	17.83	17.71	17.85	17.91	
		1882.5 (26365)	17.94	17.81	17.75	17.97	
		1851.5 (26055)	17.92	17.83	17.93	17.75	
	5MHz	1RB-High (24)	1912.5 (26665)	17.73	18.01	17.49	17.58
			1882.5 (26365)	17.85	17.64	17.84	17.80
			1852.5 (26065)	17.78	17.86	17.77	18.05
1RB-Middle (12)		1912.5 (26665)	17.90	17.52	17.77	17.91	
		1882.5 (26365)	17.91	17.97	18.04	17.80	
		1852.5 (26065)	17.73	17.49	17.84	17.81	
1RB-Low (0)		1912.5 (26665)	17.74	17.71	17.86	17.77	
		1882.5 (26365)	17.83	17.81	17.98	17.84	
		1852.5 (26065)	17.79	18.02	17.80	17.87	
12RB-High (13)		1912.5 (26665)	17.81	17.81	17.84	17.74	
		1882.5 (26365)	17.58	18.14	17.91	18.07	
		1852.5 (26065)	17.63	17.74	17.67	18.02	
12RB-Middle (6)		1912.5 (26665)	17.67	17.82	17.81	18.03	
		1882.5 (26365)	17.83	17.85	17.90	17.99	
		1852.5 (26065)	17.51	17.70	17.69	17.71	
12RB-Low (0)		1912.5 (26665)	17.80	17.61	17.76	18.05	

	25RB (0)	1882.5 (26365)	17.75	17.96	17.59	17.67	
		1852.5 (26065)	17.87	17.64	17.52	17.91	
		1912.5 (26665)	17.78	17.72	17.67	17.81	
		1882.5 (26365)	18.06	17.88	17.91	18.04	
		1852.5 (26065)	18.12	18.03	17.66	17.77	
10MHz	1RB-High (49)	1910 (26640)	17.70	17.81	17.81	17.71	
		1882.5 (26365)	17.75	17.57	17.80	17.99	
		1855 (26090)	17.75	17.67	17.89	18.03	
	1RB-Middle (24)	1910 (26640)	17.66	17.73	17.68	18.15	
		1882.5 (26365)	17.82	18.07	17.97	17.86	
		1855 (26090)	17.69	17.77	17.53	17.87	
	1RB-Low (0)	1910 (26640)	17.68	17.73	17.78	17.93	
		1882.5 (26365)	17.60	17.82	17.88	18.01	
		1855 (26090)	17.91	17.96	17.92	17.95	
	25RB-High (25)	1910 (26640)	17.82	17.82	18.07	17.79	
		1882.5 (26365)	17.58	18.12	17.89	18.10	
		1855 (26090)	17.88	17.91	17.77	17.92	
	25RB-Middle (12)	1910 (26640)	17.86	17.72	17.82	17.83	
		1882.5 (26365)	17.96	17.90	17.79	18.08	
		1855 (26090)	17.76	17.73	17.54	17.65	
	25RB-Low (0)	1910 (26640)	17.78	17.72	17.86	17.94	
		1882.5 (26365)	17.71	18.12	17.61	17.97	
		1855 (26090)	17.70	17.95	17.61	18.02	
	50RB (0)	1910 (26640)	17.75	17.94	17.79	17.80	
		1882.5 (26365)	17.80	17.67	17.75	17.83	
		1855 (26090)	17.92	17.80	17.65	17.92	
	15MHz	1RB-High (74)	1907.5 (26615)	17.73	17.84	17.72	17.80
			1882.5 (26365)	17.89	17.70	17.65	18.02
			1857.5 (26115)	17.64	17.77	17.92	17.87
1RB-Middle (37)		1907.5 (26615)	17.76	17.52	17.78	17.82	
		1882.5 (26365)	17.80	18.18	17.95	18.05	
		1857.5 (26115)	17.82	17.77	17.62	17.72	
1RB-Low (0)		1907.5 (26615)	17.69	17.50	17.63	17.75	
		1882.5 (26365)	17.51	17.64	18.12	17.80	
		1857.5 (26115)	17.98	17.98	17.82	17.83	
36RB-High (38)		1907.5 (26615)	17.74	17.77	17.98	17.63	
		1882.5 (26365)	17.77	18.08	17.84	18.06	
		1857.5 (26115)	17.83	17.75	17.66	17.88	
36RB-Middle (19)		1907.5 (26615)	17.92	17.60	17.84	17.84	
		1882.5 (26365)	17.78	17.89	17.87	17.98	
		1857.5 (26115)	17.62	17.79	17.59	17.81	

	36RB-Low (0)	1907.5 (26615)	17.82	17.79	17.83	17.82
		1882.5 (26365)	17.65	18.02	17.55	17.69
		1857.5 (26115)	17.87	17.70	17.78	18.05
	75RB (0)	1907.5 (26615)	17.64	17.94	17.85	17.95
		1882.5 (26365)	17.82	17.66	17.80	17.91
		1857.5 (26115)	18.04	17.72	17.64	17.65
20MHz	1RB-High (99)	1905 (26590)	17.85	18.03	17.72	17.73
		1882.5 (26365)	17.88	17.80	17.90	17.99
		1860 (26140)	17.87	17.86	17.85	17.96
	1RB-Middle (50)	1905 (26590)	17.80	17.73	17.92	18.05
		1882.5 (26365)	18.04	18.16	18.09	17.97
		1860 (26140)	17.76	17.74	17.74	17.88
	1RB-Low (0)	1905 (26590)	17.77	17.72	17.82	17.97
		1882.5 (26365)	17.73	17.81	18.03	18.01
		1860 (26140)	17.92	17.99	18.05	17.85
	50RB-High (50)	1905 (26590)	17.95	17.94	18.03	17.75
		1882.5 (26365)	17.76	18.05	17.95	18.05
		1860 (26140)	17.80	17.85	17.73	17.97
	50RB-Middle (25)	1905 (26590)	17.85	17.74	17.94	18.04
		1882.5 (26365)	18.02	17.96	17.99	17.99
		1860 (26140)	17.73	17.76	17.72	17.82
	50RB-Low (0)	1905 (26590)	17.97	17.81	17.93	18.05
		1882.5 (26365)	17.88	18.02	17.75	17.90
		1860 (26140)	17.87	17.86	17.71	17.98
	100RB (0)	1905 (26590)	17.87	17.86	17.86	18.03
		1882.5 (26365)	17.97	17.89	17.83	17.95
		1860 (26140)	18.05	17.97	17.83	17.83

**LTE B25 ANT1-DSI 5**

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	256QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	18.70	18.80	18.52	18.81
		1882.5 (26365)	18.81	18.91	18.59	18.69
		1850.7 (26047)	18.96	18.81	18.81	18.81
	1RB-Middle (3)	1914.3 (26683)	18.83	18.67	18.75	18.80
		1882.5 (26365)	18.93	19.11	19.20	18.01
		1850.7 (26047)	18.79	18.93	19.05	18.75
	1RB-Low (0)	1914.3 (26683)	18.73	18.74	18.51	19.06
		1882.5 (26365)	18.85	18.82	18.81	19.00
		1850.7 (26047)	18.76	18.94	18.95	18.87
	3RB-High (3)	1914.3 (26683)	19.05	18.84	18.98	18.79



		1882.5 (26365)	18.93	18.67	18.84	18.82
		1850.7 (26047)	18.74	18.72	18.89	18.84
	3RB-Middle (1)	1914.3 (26683)	18.98	18.80	19.11	18.78
		1882.5 (26365)	18.83	19.11	19.06	17.85
		1850.7 (26047)	19.08	18.56	18.78	18.78
	3RB-Low (0)	1914.3 (26683)	18.66	18.75	18.87	18.71
		1882.5 (26365)	18.70	18.81	18.87	18.87
		1850.7 (26047)	18.93	18.69	18.63	18.86
	6RB (0)	1914.3 (26683)	18.91	18.66	18.72	18.97
		1882.5 (26365)	18.71	19.10	18.79	18.92
1850.7 (26047)		18.95	18.89	18.84	18.94	
3MHz	1RB-High (14)	1913.5 (26675)	18.56	18.66	18.72	18.80
		1882.5 (26365)	18.76	19.13	18.51	18.91
		1851.5 (26055)	18.74	18.88	18.99	18.80
	1RB-Middle (7)	1913.5 (26675)	18.82	18.80	18.89	19.00
		1882.5 (26365)	19.09	19.04	19.17	17.82
		1851.5 (26055)	18.96	18.82	18.91	18.73
	1RB-Low (0)	1913.5 (26675)	18.90	18.68	18.74	18.92
		1882.5 (26365)	18.72	19.03	18.73	19.18
		1851.5 (26055)	18.80	18.86	18.82	18.91
	8RB-High (7)	1913.5 (26675)	18.90	18.95	18.90	19.04
		1882.5 (26365)	18.93	18.68	19.11	18.82
		1851.5 (26055)	18.91	18.99	19.03	18.98
	8RB-Middle (4)	1913.5 (26675)	18.86	18.68	18.91	18.62
		1882.5 (26365)	18.91	18.99	19.10	18.02
		1851.5 (26055)	19.02	18.76	18.90	18.81
	8RB-Low (0)	1913.5 (26675)	18.79	18.70	18.74	18.77
		1882.5 (26365)	18.96	19.02	19.08	18.98
		1851.5 (26055)	18.83	18.91	18.67	18.82
	15RB (0)	1913.5 (26675)	19.05	18.75	18.58	18.95
		1882.5 (26365)	18.93	18.84	18.74	18.71
		1851.5 (26055)	18.88	18.88	18.49	19.02
5MHz	1RB-High (24)	1912.5 (26665)	18.59	18.75	18.69	19.00
		1882.5 (26365)	18.61	18.91	18.75	18.64
		1852.5 (26065)	19.06	18.92	19.05	18.75
	1RB-Middle (12)	1912.5 (26665)	18.51	18.78	18.61	18.96
		1882.5 (26365)	19.13	19.22	19.13	18.04
		1852.5 (26065)	18.80	18.78	18.92	18.71
	1RB-Low (0)	1912.5 (26665)	19.04	18.71	18.82	18.97
		1882.5 (26365)	18.91	18.79	18.90	19.06
		1852.5 (26065)	19.02	18.77	18.93	18.96

	12RB-High (13)	1912.5 (26665)	18.81	18.73	18.87	18.75	
		1882.5 (26365)	18.91	18.72	19.12	18.91	
		1852.5 (26065)	18.93	18.97	18.97	18.76	
	12RB-Middle (6)	1912.5 (26665)	18.89	18.57	18.96	18.58	
		1882.5 (26365)	18.96	19.02	18.97	17.90	
		1852.5 (26065)	18.87	18.58	18.95	18.96	
	12RB-Low (0)	1912.5 (26665)	18.76	18.75	19.00	18.71	
		1882.5 (26365)	19.00	18.97	18.94	18.89	
		1852.5 (26065)	18.99	18.73	18.81	18.74	
	25RB (0)	1912.5 (26665)	18.98	18.55	18.57	18.70	
		1882.5 (26365)	18.97	18.85	18.93	18.81	
		1852.5 (26065)	18.83	18.64	18.56	18.97	
10MHz	1RB-High (49)	1910 (26640)	18.73	18.64	18.51	18.73	
		1882.5 (26365)	18.85	18.87	18.58	18.64	
		1855 (26090)	18.81	18.83	18.92	18.93	
	1RB-Middle (24)	1910 (26640)	18.59	18.63	18.69	19.04	
		1882.5 (26365)	19.01	18.93	19.14	17.98	
		1855 (26090)	18.97	18.90	18.88	18.75	
	1RB-Low (0)	1910 (26640)	18.86	18.73	18.66	19.02	
		1882.5 (26365)	18.75	19.04	18.79	19.07	
		1855 (26090)	18.96	18.71	18.94	19.08	
	25RB-High (25)	1910 (26640)	18.79	18.81	19.15	18.96	
		1882.5 (26365)	18.85	18.93	18.95	18.86	
		1855 (26090)	18.98	18.81	19.05	18.67	
	25RB-Middle (12)	1910 (26640)	18.79	18.72	18.96	18.84	
		1882.5 (26365)	18.88	18.87	18.93	18.06	
		1855 (26090)	18.82	18.74	18.74	18.95	
	25RB-Low (0)	1910 (26640)	18.86	18.69	19.02	18.85	
		1882.5 (26365)	18.76	18.90	18.82	18.99	
		1855 (26090)	18.83	18.73	18.66	18.88	
	50RB (0)	1910 (26640)	19.08	18.54	18.75	18.68	
		1882.5 (26365)	18.81	18.92	19.01	18.86	
		1855 (26090)	18.79	18.68	18.70	18.86	
	15MHz	1RB-High (74)	1907.5 (26615)	18.79	18.56	18.75	19.00
			1882.5 (26365)	18.64	18.92	18.74	18.60
			1857.5 (26115)	18.84	18.68	19.14	18.83
1RB-Middle (37)		1907.5 (26615)	18.67	18.69	18.67	18.75	
		1882.5 (26365)	19.10	19.21	18.91	17.77	
		1857.5 (26115)	18.89	18.72	19.00	18.80	
1RB-Low (0)		1907.5 (26615)	18.93	18.69	18.70	18.89	
		1882.5 (26365)	18.82	18.90	18.64	19.02	

		1857.5 (26115)	19.09	18.95	19.04	18.99
	36RB-High (38)	1907.5 (26615)	19.09	18.71	18.98	18.82
		1882.5 (26365)	18.84	18.85	19.08	18.76
		1857.5 (26115)	18.88	18.78	19.08	18.74
	36RB-Middle (19)	1907.5 (26615)	18.68	18.68	18.99	18.76
		1882.5 (26365)	19.01	18.79	19.03	18.09
		1857.5 (26115)	18.99	18.59	18.93	18.68
	36RB-Low (0)	1907.5 (26615)	18.75	18.82	18.86	18.76
		1882.5 (26365)	18.94	18.87	19.12	19.08
		1857.5 (26115)	18.89	18.79	18.64	18.87
	75RB (0)	1907.5 (26615)	18.88	18.67	18.66	18.70
		1882.5 (26365)	18.99	19.02	18.75	18.71
		1857.5 (26115)	18.81	18.73	18.63	18.85
20MHz	1RB-High (99)	1905 (26590)	18.78	18.74	18.72	18.93
		1882.5 (26365)	18.76	19.07	18.74	18.85
		1860 (26140)	18.98	18.93	19.05	18.96
	1RB-Middle (50)	1905 (26590)	18.74	18.82	18.80	18.99
		1882.5 (26365)	19.03	19.15	19.11	17.98
		1860 (26140)	19.01	18.88	19.06	18.90
	1RB-Low (0)	1905 (26590)	18.95	18.92	18.73	19.02
		1882.5 (26365)	18.82	19.01	18.86	19.08
		1860 (26140)	19.01	18.96	19.07	18.99
	50RB-High (50)	1905 (26590)	19.01	18.86	19.09	18.99
		1882.5 (26365)	18.98	18.92	19.06	18.93
		1860 (26140)	18.99	18.90	19.01	18.90
	50RB-Middle (25)	1905 (26590)	18.90	18.71	19.03	18.80
		1882.5 (26365)	19.04	19.03	19.03	18.02
		1860 (26140)	19.01	18.70	18.97	18.93
	50RB-Low (0)	1905 (26590)	18.80	18.84	18.95	18.75
		1882.5 (26365)	18.95	19.05	19.07	19.06
		1860 (26140)	19.00	18.87	18.78	18.82
	100RB (0)	1905 (26590)	19.00	18.78	18.72	18.91
		1882.5 (26365)	18.93	19.04	18.99	18.92
		1860 (26140)	19.03	18.82	18.74	19.06

**N25 ANT2-DSI 3**

5G-n25								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1912.5	382500	17.5	17.25
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1882.5	376500	17.5	17.26
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1852.5	370500	17.5	17.09
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1905	381000	17.5	17.21
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1882.5	376500	17.5	17.22
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1860	372000	17.5	17.10
15	5	DFT-s-OFDM PI/2 BPSK1	Inner_Full	12@6	1882.5	376500	17.5	17.23
15	5	DFT-s-OFDM 16QAM	Inner_Full	12@6	1882.5	376500	17.5	17.22
15	5	DFT-s-OFDM 64QAM	Inner_Full	12@6	1882.5	376500	17.5	17.17
15	5	DFT-s-OFDM 256QAM	Inner_Full	12@6	1882.5	376500	17.5	17.00
15	5	CP-OFDM QPSK	Inner_Full	13@6	1882.5	376500	17.5	17.19
15	5	CP-OFDM 16QAM	Inner_Full	13@6	1882.5	376500	17.5	16.96
15	5	CP-OFDM 64QAM	Inner_Full	13@6	1882.5	376500	17.5	16.95
15	5	CP-OFDM 256QAM	Inner_Full	13@6	1882.5	376500	17.5	17.11
15	5	DFT-s-OFDM QPSK	Edge_Full_Right	2@23	1882.5	376500	17.5	17.09
15	5	DFT-s-OFDM QPSK	Edge_Full_Left	2@0	1882.5	376500	17.5	16.95
15	5	DFT-s-OFDM QPSK	Inner_1RB_Right	1@23	1882.5	370500	17.5	17.16
15	5	DFT-s-OFDM QPSK	Inner_1RB_Left	1@1	1882.5	370500	17.5	17.02
15	5	DFT-s-OFDM QPSK	Outer_Full	25@0	1882.5	370500	17.5	16.81
15	10	DFT-s-OFDM QPSK	Inner_Full	25@12	1882.5	376500	17.5	16.99
15	15	DFT-s-OFDM QPSK	Inner_Full	36@18	1882.5	376500	17.5	17.14

**N25 ANT2-DSI 4**

5G-n25								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1912.5	382500	20.5	20.08
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1882.5	376500	20.5	20.13
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1852.5	370500	20.5	19.98
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1905	381000	20.5	20.05
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1882.5	376500	20.5	20.07
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1860	372000	20.5	20.02
15	5	DFT-s-OFDM PI/2 BPSK1	Inner_Full	12@6	1882.5	376500	20.5	19.81
15	5	DFT-s-OFDM 16QAM	Inner_Full	12@6	1882.5	376500	20.5	19.93
15	5	DFT-s-OFDM 64QAM	Inner_Full	12@6	1882.5	376500	20.5	20.03
15	5	DFT-s-OFDM 256QAM	Inner_Full	12@6	1882.5	376500	20.5	19.83
15	5	CP-OFDM QPSK	Inner_Full	13@6	1882.5	376500	20.5	19.94
15	5	CP-OFDM 16QAM	Inner_Full	13@6	1882.5	376500	20.5	19.82
15	5	CP-OFDM 64QAM	Inner_Full	13@6	1882.5	376500	20.5	20.01
15	5	CP-OFDM 256QAM	Inner_Full	13@6	1882.5	376500	19	18.75
15	5	DFT-s-OFDM QPSK	Edge_Full_Right	2@23	1882.5	376500	20.5	20.04
15	5	DFT-s-OFDM QPSK	Edge_Full_Left	2@0	1882.5	376500	20.5	20.05
15	5	DFT-s-OFDM QPSK	Inner_1RB_Right	1@23	1882.5	370500	20.5	19.85
15	5	DFT-s-OFDM QPSK	Inner_1RB_Left	1@1	1882.5	370500	20.5	19.93
15	5	DFT-s-OFDM QPSK	Outer_Full	25@0	1882.5	370500	20.5	19.80
15	10	DFT-s-OFDM QPSK	Inner_Full	25@12	1882.5	376500	20.5	19.94
15	15	DFT-s-OFDM QPSK	Inner_Full	36@18	1882.5	376500	20.5	19.90



**N25 ANT2-DSI 5**

5G-n25								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1912.5	382500	22.5	22.13
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1882.5	376500	22.5	22.15
15	5	DFT-s-OFDM QPSK	Inner_Full	12@6	1852.5	370500	22.5	22.00
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1905	381000	22.5	22.11
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1882.5	376500	22.5	22.10
15	20	DFT-s-OFDM QPSK	Inner_Full	50@25	1860	372000	22.5	21.97
15	5	DFT-s-OFDM PI/2 BPSK1	Inner_Full	12@6	1882.5	376500	22.5	22.07
15	5	DFT-s-OFDM 16QAM	Inner_Full	12@6	1882.5	376500	22.5	22.11
15	5	DFT-s-OFDM 64QAM	Inner_Full	12@6	1882.5	376500	22.5	21.87
15	5	DFT-s-OFDM 256QAM	Inner_Full	12@6	1882.5	376500	21	20.77
15	5	CP-OFDM QPSK	Inner_Full	13@6	1882.5	376500	22.5	21.85
15	5	CP-OFDM 16QAM	Inner_Full	13@6	1882.5	376500	22.5	22.05
15	5	CP-OFDM 64QAM	Inner_Full	13@6	1882.5	376500	22	21.82
15	5	CP-OFDM 256QAM	Inner_Full	13@6	1882.5	376500	19	18.74
15	5	DFT-s-OFDM QPSK	Edge_Full_Right	2@23	1882.5	376500	22.5	22.02
15	5	DFT-s-OFDM QPSK	Edge_Full_Left	2@0	1882.5	376500	22.5	22.12
15	5	DFT-s-OFDM QPSK	Inner_1RB_Right	1@23	1882.5	370500	22.5	21.87
15	5	DFT-s-OFDM QPSK	Inner_1RB_Left	1@1	1882.5	370500	22.5	22.11
15	5	DFT-s-OFDM QPSK	Outer_Full	25@0	1882.5	370500	22.5	21.94
15	10	DFT-s-OFDM QPSK	Inner_Full	25@12	1882.5	376500	22.5	21.90
15	15	DFT-s-OFDM QPSK	Inner_Full	36@18	1882.5	376500	22.5	22.05

**N7 ANT4-DSI 0/1/2**

5G-n7								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
15	5	DFT-s-OFDM QPSK	Inner_Full	12_6	2567.5	513500	19.50	19.15
15	5	DFT-s-OFDM QPSK	Inner_Full	12_6	2535	507000	19.50	19.16
15	5	DFT-s-OFDM QPSK	Inner_Full	12_6	2502.5	500500	19.50	18.72
15	40	DFT-s-OFDM QPSK	Inner_Full	108_54	2550	510000	19.50	18.98
15	40	DFT-s-OFDM QPSK	Inner_Full	108_54	2535	507000	19.50	19.19
15	40	DFT-s-OFDM QPSK	Inner_Full	108_54	2520	504000	19.50	19.11
15	40	DFT-s-OFDM PI/2 BPSK1	Inner_Full	108_54	2535	507000	19.50	19.00
15	40	DFT-s-OFDM 16QAM	Inner_Full	108_54	2535	507000	19.50	18.98
15	40	DFT-s-OFDM 64QAM	Inner_Full	108_54	2535	507000	19.50	18.99
15	40	DFT-s-OFDM 256QAM	Inner_Full	108_54	2535	507000	19.50	19.01
15	40	CP-OFDM QPSK	Inner_Full	108_54	2535	507000	19.50	18.97
15	40	CP-OFDM 16QAM	Inner_Full	108_54	2535	507000	19.50	18.98
15	40	CP-OFDM 64QAM	Inner_Full	108_54	2535	507000	19.50	18.92
15	40	CP-OFDM 256QAM	Inner_Full	108_54	2535	507000	18.00	16.90
15	40	DFT-s-OFDM QPSK	Edge_Full_Right	2_214	2535	507000	19.50	19.12
15	40	DFT-s-OFDM QPSK	Edge_Full_Left	2_0	2535	507000	19.50	19.17
15	40	DFT-s-OFDM QPSK	Edge_1RB_Right	1_215	2535	507000	19.50	19.16
15	40	DFT-s-OFDM QPSK	Edge_1RB_Left	1_0	2535	507000	19.50	19.13
15	40	DFT-s-OFDM QPSK	Inner_1RB_Right	1_214	2535	507000	19.50	19.09
15	40	DFT-s-OFDM QPSK	Inner_1RB_Left	1_1	2535	507000	19.50	19.02
15	40	DFT-s-OFDM QPSK	Outer_Full	216_0	2535	507000	19.50	19.04
15	10	DFT-s-OFDM QPSK	Inner_Full	25_12	2535	507000	19.50	19.06
15	15	DFT-s-OFDM QPSK	Inner_Full	36_18	2535	507000	19.50	19.03
15	20	DFT-s-OFDM QPSK	Inner_Full	50_25	2535	507000	19.50	19.08
15	25	DFT-s-OFDM QPSK	Inner_Full	64_32	2535	507000	19.50	19.03
15	30	DFT-s-OFDM QPSK	Inner_Full	80_40	2535	507000	19.50	19.02

**N38 ANT4-DSI 0/1**

5G-n38								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2615	523000	19.50	19.18
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2595	519000	19.50	19.29
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2575	515000	19.50	19.25
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2610	522000	19.50	19.15
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2595	519000	19.50	19.04
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2580	516000	19.50	19.03
30	10	DFT-s-OFDM PI/2 BPSK1	Inner_Full	12@6	2595	519000	19.50	19.25
30	10	DFT-s-OFDM 16QAM	Inner_Full	12@6	2595	519000	19.50	19.24
30	10	DFT-s-OFDM 64QAM	Inner_Full	12@6	2595	519000	19.50	19.24
30	10	DFT-s-OFDM 256QAM	Inner_Full	12@6	2595	519000	19.50	19.22
30	10	CP-OFDM QPSK	Inner_Full	12@6	2595	519000	19.50	19.14
30	10	CP-OFDM 16QAM	Inner_Full	12@6	2595	519000	19.50	19.21
30	10	CP-OFDM 64QAM	Inner_Full	12@6	2595	519000	19.50	19.15
30	10	CP-OFDM 256QAM	Inner_Full	12@6	2595	519000	18.50	17.07
30	10	DFT-s-OFDM QPSK	Edge_Full_Right	2@22	2595	519000	19.50	19.14
30	10	DFT-s-OFDM QPSK	Edge_Full_Left	2@0	2595	519000	19.50	19.12
30	10	DFT-s-OFDM QPSK	Inner_1RB_Right	1@22	2595	519000	19.50	19.11
30	10	DFT-s-OFDM QPSK	Inner_1RB_Left	1@1	2595	519000	19.50	19.13
30	10	DFT-s-OFDM QPSK	Outer_Full	24@0	2595	519000	19.50	19.15
30	15	DFT-s-OFDM QPSK	Inner_Full	18_9	2595	519000	19.50	19.14

**N38 ANT4-DSI 2**

5G-n38								
SCS (kHz)	NR BW (MHz)	Modulation	RB allocation		NR Test Freq. (MHz)	NR Test CH.	Tune up	Power Results (dBm)
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2615	523000	20.50	20.02
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2595	519000	20.50	20.04
30	10	DFT-s-OFDM QPSK	Inner_Full	12@6	2575	515000	20.50	19.95
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2610	522000	20.50	19.97
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2595	519000	20.50	19.70
30	20	DFT-s-OFDM QPSK	Inner_Full	25@12	2580	516000	20.50	19.76
30	10	DFT-s-OFDM PI/2 BPSK1	Inner_Full	12@6	2595	519000	20.50	20.02
30	10	DFT-s-OFDM 16QAM	Inner_Full	12@6	2595	519000	20.50	19.97
30	10	DFT-s-OFDM 64QAM	Inner_Full	12@6	2595	519000	20.50	19.9
30	10	DFT-s-OFDM 256QAM	Inner_Full	12@6	2595	519000	20.50	19.98
30	10	CP-OFDM QPSK	Inner_Full	12@6	2595	519000	20.50	19.97
30	10	CP-OFDM 16QAM	Inner_Full	12@6	2595	519000	20.50	20.00
30	10	CP-OFDM 64QAM	Inner_Full	12@6	2595	519000	20.50	19.84
30	10	CP-OFDM 256QAM	Inner_Full	12@6	2595	519000	18.50	17.72
30	10	DFT-s-OFDM QPSK	Edge_Full_Right	2@22	2595	519000	20.50	19.91
30	10	DFT-s-OFDM QPSK	Edge_Full_Left	2@0	2595	519000	20.50	19.78
30	10	DFT-s-OFDM QPSK	Inner_1RB_Right	1@22	2595	519000	20.50	19.88
30	10	DFT-s-OFDM QPSK	Inner_1RB_Left	1@1	2595	519000	20.50	19.87
30	10	DFT-s-OFDM QPSK	Outer_Full	24@0	2595	519000	20.50	19.84
30	15	DFT-s-OFDM QPSK	Inner_Full	18_9	2595	519000	20.50	19.94

**J.5 SAR results - Newly add bands**

ANT	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
4	Head	LTE Band7	20850	2510	1RB-Mid	Cheek Left	0mm	\	16.08	17.5	0.094	<b>0.13</b>	0.044	<b>0.06</b>	-0.11
4	Head	LTE Band7	20850	2510	1RB-Mid	Tilt Left	0mm	\	16.08	17.5	0	<b>0.00</b>	0	<b>0.00</b>	\
4	Head	LTE Band7	20850	2510	1RB-Mid	Cheek Right	0mm	J.1	16.08	17.5	0.227	<b>0.31</b>	0.095	<b>0.13</b>	0.07
4	Head	LTE Band7	20850	2510	1RB-Mid	Tilt Right	0mm	\	16.08	17.5	0.038	<b>0.05</b>	0.021	<b>0.03</b>	0.06
4	Head	LTE Band7	20850	2510	50RB-Mid	Cheek Left	0mm	\	16.09	17.5	0.1	<b>0.14</b>	0.048	<b>0.07</b>	-0.12
4	Head	LTE Band7	20850	2510	50RB-Mid	Tilt Left	0mm	\	16.09	17.5	0	<b>0.00</b>	0	<b>0.00</b>	\
4	Head	LTE Band7	20850	2510	50RB-Mid	Cheek Right	0mm	\	16.09	17.5	0.221	<b>0.31</b>	0.092	<b>0.13</b>	0.07
4	Head	LTE Band7	20850	2510	50RB-Mid	Tilt Right	0mm	\	16.09	17.5	0.04	<b>0.06</b>	0.022	<b>0.03</b>	-0.06
4	Body	LTE Band7	20850	2510	1RB-Mid	Front	10mm	\	16.08	17.5	0.049	<b>0.07</b>	0.026	<b>0.04</b>	0.12
4	Body	LTE Band7	20850	2510	1RB-Mid	Rear	10mm	\	16.08	17.5	0.108	<b>0.15</b>	0.05	<b>0.07</b>	-0.07
4	Body	LTE Band7	20850	2510	1RB-Mid	Left	10mm	J.2	16.08	17.5	0.147	<b>0.20</b>	0.064	<b>0.09</b>	0.05
4	Body	LTE Band7	20850	2510	1RB-Mid	Top	10mm	\	16.08	17.5	<0.01	<0.01	<0.01	<0.01	\
4	Body	LTE Band7	20850	2510	50RB-Mid	Front	10mm	\	16.09	17.5	0.055	<b>0.08</b>	0.026	<b>0.04</b>	0.11
4	Body	LTE Band7	20850	2510	50RB-Mid	Rear	10mm	\	16.09	17.5	0.127	<b>0.18</b>	0.06	<b>0.08</b>	0.07
4	Body	LTE Band7	20850	2510	50RB-Mid	Left	10mm	\	16.09	17.5	0.138	<b>0.19</b>	0.0625	<b>0.09</b>	0.1
4	Body	LTE Band7	20850	2510	50RB-Mid	Top	10mm	\	16.09	17.5	<0.01	<0.01	<0.01	<0.01	\
4	Body	LTE Band7	20850	2510	1RB-Mid	Front	15mm	\	16.08	17.5	0.029	<b>0.04</b>	0.015	<b>0.02</b>	-0.12
4	Body	LTE Band7	20850	2510	1RB-Mid	Rear	15mm	J.3	16.08	17.5	0.072	<b>0.10</b>	0.033	<b>0.05</b>	0.04
4	Body	LTE Band7	20850	2510	50RB-Mid	Front	15mm	\	16.09	17.5	0.038	<b>0.05</b>	0.019	<b>0.03</b>	0.07
4	Body	LTE Band7	20850	2510	50RB-Mid	Rear	15mm	\	16.09	17.5	0.066	<b>0.09</b>	0.026	<b>0.04</b>	0.13
1	Head	LTE Band25	26365	1882.5	1RB-Mid	Cheek Left	0mm	J.4	18.04	19	0.021	<b>0.03</b>	0.013	<b>0.02</b>	-0.09
1	Head	LTE Band25	26365	1882.5	1RB-Mid	Tilt Left	0mm	\	18.04	19	<0.01	<0.01	<0.01	<0.01	\
1	Head	LTE Band25	26365	1882.5	1RB-Mid	Cheek Right	0mm	\	18.04	19	0.013	<b>0.02</b>	0.007	<b>0.01</b>	0.11
1	Head	LTE Band25	26365	1882.5	1RB-Mid	Tilt Right	0mm	\	18.04	19	<0.01	<0.01	<0.01	<0.01	\
1	Head	LTE Band25	26365	1882.5	50RB-Mid	Cheek Left	0mm	\	18.02	19	0.015	<b>0.02</b>	0.005	<b>0.01</b>	-0.05
1	Head	LTE Band25	26365	1882.5	50RB-Mid	Tilt Left	0mm	\	18.02	19	<0.01	<0.01	<0.01	<0.01	\
1	Head	LTE Band25	26365	1882.5	50RB-Mid	Cheek Right	0mm	\	18.02	19	0.018	<b>0.02</b>	0.008	<b>0.01</b>	0.08
1	Head	LTE Band25	26365	1882.5	50RB-Mid	Tilt Right	0mm	\	18.02	19	<0.01	<0.01	<0.01	<0.01	\
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Front	10mm	\	18.04	19	0.085	<b>0.11</b>	0.048	<b>0.06</b>	-0.11
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Rear	10mm	\	18.04	19	0.149	<b>0.19</b>	0.08	<b>0.10</b>	0.09
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Left	10mm	\	18.04	19	<0.01	<0.01	<0.01	<0.01	\
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Right	10mm	\	18.04	19	<0.01	<0.01	<0.01	<0.01	\
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Bottom	10mm	J.5	18.04	19	0.561	<b>0.70</b>	0.298	<b>0.37</b>	0.01
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Front	10mm	\	18.02	19	0.091	<b>0.11</b>	0.051	<b>0.06</b>	-0.08
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Rear	10mm	\	18.02	19	0.146	<b>0.18</b>	0.079	<b>0.10</b>	0.05
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Left	10mm	\	18.02	19	<0.01	<0.01	<0.01	<0.01	\
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Right	10mm	\	18.02	19	<0.01	<0.01	<0.01	<0.01	\
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Bottom	10mm	\	18.02	19	0.528	<b>0.66</b>	0.291	<b>0.36</b>	-0.11
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Front	15mm	\	19.03	20.00	0.095	<b>0.12</b>	0.055	<b>0.07</b>	-0.09
1	Body	LTE Band25	26365	1882.5	1RB-Mid	Rear	15mm	J.6	19.03	20.00	0.144	<b>0.18</b>	0.083	<b>0.10</b>	0.07
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Front	15mm	\	19.04	20.00	0.095	<b>0.12</b>	0.055	<b>0.07</b>	0.13
1	Body	LTE Band25	26365	1882.5	50RB-Mid	Rear	15mm	\	19.04	20.00	0.137	<b>0.17</b>	0.08	<b>0.10</b>	-0.07

ANT	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode	Test setup	Distance	Figure No./Note	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
2	Head	N25	376500	1882.5	DFT-s-OFDM QPSK	Cheek Left	0mm	J.7	17.26	17.50	0.366	<b>0.39</b>	0.192	<b>0.20</b>	-0.08
2	Head	N25	376500	1882.5	DFT-s-OFDM QPSK	Tilt Left	0mm	\	17.26	17.50	0.166	<b>0.18</b>	0.086	<b>0.09</b>	0.11
2	Head	N25	376500	1882.5	DFT-s-OFDM QPSK	Cheek Right	0mm	\	17.26	17.50	0.182	<b>0.19</b>	0.108	<b>0.11</b>	-0.07
2	Head	N25	376500	1882.5	DFT-s-OFDM QPSK	Tilt Right	0mm	\	17.26	17.50	0.125	<b>0.13</b>	0.070	<b>0.07</b>	-0.02
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Front	10mm	\	20.13	20.50	0.197	<b>0.21</b>	0.117	<b>0.13</b>	0.11
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Rear	10mm	\	20.13	20.50	0.246	<b>0.27</b>	0.133	<b>0.14</b>	-0.07
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Right	10mm	J.8	20.13	20.50	0.376	<b>0.41</b>	0.192	<b>0.21</b>	0.08
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Top	10mm	\	20.13	20.50	0.115	<b>0.13</b>	0.066	<b>0.07</b>	0.09
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Front	15mm	\	22.15	22.50	0.118	<b>0.13</b>	0.076	<b>0.08</b>	-0.15
2	Body	N25	376500	1882.5	DFT-s-OFDM QPSK	Rear	15mm	J.9	22.15	22.50	0.165	<b>0.18</b>	0.093	<b>0.10</b>	0.06

ANT	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode	Test setup	Distance	Figure No./Note	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
4	Head	N7	507000	2535	DFT-s-OFDM QPSK	Cheek Left	0mm	\	19.19	19.5	0.478	0.51	0.199	0.21	-0.03
4	Head	N7	507000	2535	DFT-s-OFDM QPSK	Tilt Left	0mm	\	19.19	19.5	0.092	0.10	0.046	0.05	0.09
4	Head	N7	507000	2535	DFT-s-OFDM QPSK	Cheek Right	0mm	J.10	19.19	19.5	0.695	0.75	0.289	0.31	-0.14
4	Head	N7	507000	2535	DFT-s-OFDM QPSK	Tilt Right	0mm	\	19.19	19.5	0.18	0.19	0.085	0.09	0.17
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Front	10mm	\	19.19	19.5	0.142	0.15	0.068	0.07	0.15
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Rear	10mm	J.11	19.19	19.5	0.459	0.49	0.196	0.21	-0.05
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Left Edge	10mm	\	19.19	19.5	0.358	0.38	0.146	0.16	0.17
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Top Edge	10mm	\	19.19	19.5	<0.01	<0.01	<0.01	<0.01	\
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Front	15mm	\	19.19	19.5	0.085	0.09	0.043	0.05	0.08
4	Body	N7	507000	2535	DFT-s-OFDM QPSK	Rear	15mm	J.12	19.19	19.5	0.214	0.23	0.103	0.11	-0.03
4	Head	N38	519000	2595	DFT-s-OFDM QPSK	Cheek Left	0mm	\	19.29	19.5	0.251	0.26	0.112	0.12	-0.11
4	Head	N38	519000	2595	DFT-s-OFDM QPSK	Tilt Left	0mm	\	19.29	19.5	0.062	0.07	0.029	0.03	0.17
4	Head	N38	519000	2595	DFT-s-OFDM QPSK	Cheek Right	0mm	J.13	19.29	19.5	0.502	0.53	0.213	0.22	0.09
4	Head	N38	519000	2595	DFT-s-OFDM QPSK	Tilt Right	0mm	\	19.29	19.5	0.125	0.13	0.055	0.06	-0.04
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Front	10mm	\	19.29	19.5	0.143	0.15	0.065	0.07	0.15
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Rear	10mm	J.14	19.29	19.5	0.532	0.56	0.229	0.24	-0.08
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Left Edge	10mm	\	19.29	19.5	0.474	0.50	0.186	0.20	0.09
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Top Edge	10mm	\	19.29	19.5	<0.01	<0.01	<0.01	<0.01	\
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Front	15mm	\	20.04	20.5	0.074	0.08	0.039	0.04	-0.02
4	Body	N38	519000	2595	DFT-s-OFDM QPSK	Rear	15mm	J.15	20.04	20.5	0.254	0.28	0.121	0.13	-0.05

### J.6 Evaluation of Simultaneous-Newly add ULCA/ENDC

ULCA+WIFI		LTE B2 ANT2	LTEB7 ANT4	LTEB12 ANT0	LTEB71 ANT0	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.76	0.14	0.30	0.18	0.09	0.11	0.05	0.00	1.15	1.22
	Tilt Left	0.36	0.00	0.32	0.19	0.07	0.13	0.06	0.00	0.75	0.87
	Cheek Right	0.32	0.31	0.38	0.21	0.03	0.04	0.03	0.00	0.73	0.77
	Tilt Right	0.27	0.05	0.44	0.26	0.03	0.04	0.02	0.00	0.74	0.77
Body	Front 10mm	0.27	0.08	0.16	0.21	0.09	0.04	0.00	0.00	0.57	0.52
	Rear 10mm	0.35	0.18	0.24	0.32	0.07	0.13	0.00	0.00	0.74	0.80
	Left 10mm		0.20	0.13	0.36	0.00	0.00	0.00	0.00	0.36	0.36
	Right 10mm	0.58		0.06	0.00	0.07	0.10	0.00	0.00	0.71	0.74
	Bottom 10mm					0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.16	0.00	0.19	0.21	0.00	0.08	0.00	0.00	0.37	0.45
	Front 15mm	0.34	0.05	0.21	0.21	0.00	0.00	0.00	0.00	0.55	0.55
	Rear 15mm	0.40	0.10	0.24	0.27	0.00	0.00	0.00	0.00	0.67	0.67

ULCA+WIFI		LTE B4 ANT1	LTEB7 ANT4	LTEB71 ANT0	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.02	0.14	0.18	0.09	0.11	0.05	0.00	0.29	0.36
	Tilt Left	0.00	0.00	0.19	0.07	0.13	0.06	0.00	0.26	0.38
	Cheek Right	0.02	0.31	0.21	0.03	0.04	0.03	0.00	0.36	0.40
	Tilt Right	0.00	0.05	0.26	0.03	0.04	0.02	0.00	0.29	0.32
Body	Front 10mm	0.32	0.08	0.21	0.09	0.04	0.00	0.00	0.62	0.57
	Rear 10mm	0.59	0.18	0.32	0.07	0.13	0.00	0.00	0.98	1.04
	Left 10mm		0.20	0.36	0.00	0.00	0.00	0.00	0.36	0.36
	Right 10mm	0.10		0.00	0.07	0.10	0.00	0.00	0.17	0.20
	Bottom 10mm	0.62			0.00	0.00	0.00	0.00	0.62	0.62
	Top 10mm		0.00	0.21	0.00	0.08	0.00	0.00	0.21	0.29
	Front 15mm	0.35	0.05	0.21	0.00	0.00	0.00	0.00	0.56	0.56
	Rear 15mm	0.53	0.10	0.27	0.00	0.00	0.00	0.00	0.80	0.80

ULCA+WIFI		LTE B4 ANT2	LTE B17 ANT0	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.68	0.30	0.09	0.11	0.05	0.00	1.07	1.14
	Tilt Left	0.36	0.32	0.07	0.13	0.06	0.00	0.75	0.87
	Cheek Right	0.34	0.38	0.03	0.04	0.03	0.00	0.75	0.79
	Tilt Right	0.31	0.44	0.03	0.04	0.02	0.00	0.78	0.81
Body	Front 10mm	0.32	0.16	0.09	0.04	0.00	0.00	0.57	0.52
	Rear 10mm	0.39	0.24	0.07	0.13	0.00	0.00	0.70	0.76
	Left 10mm		0.13	0.00	0.00	0.00	0.00	0.13	0.13
	Right 10mm	0.42	0.06	0.07	0.10	0.00	0.00	0.55	0.58
	Bottom 10mm			0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.24	0.19	0.00	0.08	0.00	0.00	0.43	0.51
	Front 15mm	0.25	0.21	0.00	0.00	0.00	0.00	0.46	0.46
	Rear 15mm	0.32	0.24	0.00	0.00	0.00	0.00	0.56	0.56

ULCA+WIFI		LTE B5 ANT0	LTEB7 ANT4	LTEB66 ANT2	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.34	0.14	0.35	0.09	0.11	0.05	0.00	0.78	0.85
	Tilt Left	0.39	0.00	0.19	0.07	0.13	0.06	0.00	0.65	0.77
	Cheek Right	0.38	0.31	0.16	0.03	0.04	0.03	0.00	0.72	0.76
	Tilt Right	0.43	0.05	0.16	0.03	0.04	0.02	0.00	0.62	0.65
Body	Front 10mm	0.32	0.08	0.07	0.09	0.04	0.00	0.00	0.49	0.44
	Rear 10mm	0.30	0.18	0.09	0.07	0.13	0.00	0.00	0.55	0.61
	Left 10mm	0.22	0.20		0.00	0.00	0.00	0.00	0.42	0.42
	Right 10mm	0.08		0.12	0.07	0.10	0.00	0.00	0.27	0.30
	Bottom 10mm				0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.45	0.00	0.07	0.00	0.08	0.00	0.00	0.52	0.60
	Front 15mm	0.26	0.05	0.07	0.00	0.00	0.00	0.00	0.33	0.33
	Rear 15mm	0.26	0.10	0.08	0.00	0.00	0.00	0.00	0.36	0.36

ULCA+WIFI		LTEB7 ANT4	LTE B12 ANT0	LTE B66 ANT2	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.14	0.30	0.35	0.09	0.11	0.05	0.00	0.58	0.65
	Tilt Left	0.00	0.32	0.19	0.07	0.13	0.06	0.00	0.39	0.51
	Cheek Right	0.31	0.38	0.16	0.03	0.04	0.03	0.00	0.72	0.76
	Tilt Right	0.05	0.44	0.16	0.03	0.04	0.02	0.00	0.52	0.55
Body	Front 10mm	0.08	0.16	0.07	0.09	0.04	0.00	0.00	0.33	0.28
	Rear 10mm	0.18	0.24	0.09	0.07	0.13	0.00	0.00	0.49	0.55
	Left 10mm	0.20	0.13		0.00	0.00	0.00	0.00	0.33	0.33
	Right 10mm		0.06	0.12	0.07	0.10	0.00	0.00	0.19	0.22
	Bottom 10mm				0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.00	0.19	0.07	0.00	0.08	0.00	0.00	0.19	0.27
	Front 15mm	0.05	0.21	0.07	0.00	0.00	0.00	0.00	0.26	0.26
	Rear 15mm	0.10	0.24	0.08	0.00	0.00	0.00	0.00	0.34	0.34

ULCA+WIFI		LTE B12 ANT0	LTE B66 ANT2	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.30	0.35	0.09	0.11	0.05	0.00	0.74	0.81
	Tilt Left	0.32	0.19	0.07	0.13	0.06	0.00	0.58	0.70
	Cheek Right	0.38	0.16	0.03	0.04	0.03	0.00	0.57	0.61
	Tilt Right	0.44	0.16	0.03	0.04	0.02	0.00	0.63	0.66
Body	Front 10mm	0.16	0.07	0.09	0.04	0.00	0.00	0.32	0.27
	Rear 10mm	0.24	0.09	0.07	0.13	0.00	0.00	0.40	0.46
	Left 10mm	0.13		0.00	0.00	0.00	0.00	0.13	0.13
	Right 10mm	0.06	0.12	0.07	0.10	0.00	0.00	0.25	0.28
	Bottom 10mm			0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.19	0.07	0.00	0.08	0.00	0.00	0.26	0.34
	Front 15mm	0.21	0.07	0.00	0.00	0.00	0.00	0.28	0.28
	Rear 15mm	0.24	0.08	0.00	0.00	0.00	0.00	0.32	0.32

ENDC+WIFI		n5 ANT0	LTEB7 ANT3	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.39	0.05	0.09	0.11	0.05	0.00	0.53	0.60
	Tilt Left	0.45	0.00	0.07	0.13	0.06	0.00	0.52	0.64
	Cheek Right	0.46	0.00	0.03	0.04	0.03	0.00	0.49	0.53
	Tilt Right	0.48	0.00	0.03	0.04	0.02	0.00	0.51	0.54
Body	Front 10mm	0.35	0.00	0.09	0.04	0.00	0.00	0.44	0.39
	Rear 10mm	0.33	0.00	0.07	0.13	0.00	0.00	0.40	0.46
	Left 10mm	0.31		0.00	0.00	0.00	0.00	0.31	0.31
	Right 10mm	0.14	0.00	0.07	0.10	0.00	0.00	0.21	0.24
	Bottom 10mm		0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.59		0.00	0.08	0.00	0.00	0.59	0.67
	Front 15mm	0.34	0.00	0.00	0.00	0.00	0.00	0.34	0.34
	Rear 15mm	0.22	0.00	0.00	0.00	0.00	0.00	0.22	0.22

ENDC+WIFI		n41 ANT4	LTEB25 ANT1	LTEB26 ANT0	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.19	0.03	0.30	0.09	0.11	0.05	0.00	0.58	0.65
	Tilt Left	0.08	0.00	0.29	0.07	0.13	0.06	0.00	0.44	0.56
	Cheek Right	0.56	0.02	0.35	0.03	0.04	0.03	0.00	0.94	0.98
	Tilt Right	0.14	0.00	0.33	0.03	0.04	0.02	0.00	0.50	0.53
Body	Front 10mm	0.25	0.11	0.31	0.09	0.04	0.00	0.00	0.65	0.60
	Rear 10mm	0.48	0.19	0.29	0.07	0.13	0.00	0.00	0.84	0.90
	Left 10mm	0.74	0.00	0.27	0.00	0.00	0.00	0.00	1.01	1.01
	Right 10mm	0.00	0.00		0.07	0.10	0.00	0.00	0.07	0.10
	Bottom 10mm		0.70		0.00	0.00	0.00	0.00	0.70	0.70
	Top 10mm	0.08		0.35	0.00	0.08	0.00	0.00	0.43	0.51
	Front 15mm	0.20	0.12	0.23	0.00	0.00	0.00	0.00	0.43	0.43
	Rear 15mm	0.52	0.18	0.25	0.00	0.00	0.00	0.00	0.77	0.77

ENDC+WIFI		n77 ANT2	LTEB26 ANT0	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.67	0.30	0.09	0.11	0.05	0.00	1.06	1.13
	Tilt Left	0.32	0.29	0.07	0.13	0.06	0.00	0.68	0.80
	Cheek Right	0.09	0.35	0.03	0.04	0.03	0.00	0.47	0.51
	Tilt Right	0.08	0.33	0.03	0.04	0.02	0.00	0.44	0.47
Body	Front 10mm	0.20	0.31	0.09	0.04	0.00	0.00	0.60	0.55
	Rear 10mm	0.31	0.29	0.07	0.13	0.00	0.00	0.67	0.73
	Left 10mm		0.27	0.00	0.00	0.00	0.00	0.27	0.27
	Right 10mm	0.74		0.07	0.10	0.00	0.00	0.81	0.84
	Bottom 10mm			0.00	0.00	0.00	0.00	0.00	0.00
	Top 10mm	0.10	0.35	0.00	0.08	0.00	0.00	0.45	0.53
	Front 15mm	0.07	0.23	0.00	0.00	0.00	0.00	0.30	0.30
	Rear 15mm	0.26	0.25	0.00	0.00	0.00	0.00	0.51	0.51

ENDC+WIFI		n78 ANT2	LTEB2 ANT1	LTEB12 ANT0	LTEB66 ANT1	WIFI2.4G	WIFI5G	BT	NFC	ULCA+WIFI2.4G+NFC	ULCA+WIFI5G+BT+NFC
Head	Cheek Left	0.45	0.03	0.30	0.02	0.09	0.11	0.05	0.00	0.84	0.91
	Tilt Left	0.25	0.00	0.32	0.00	0.07	0.13	0.06	0.00	0.64	0.76
	Cheek Right	0.07	0.02	0.38	0.02	0.03	0.04	0.03	0.00	0.48	0.52
	Tilt Right	0.07	0.00	0.44	0.00	0.03	0.04	0.02	0.00	0.54	0.57
Body	Front 10mm	0.18	0.06	0.16	0.17	0.09	0.04	0.00	0.00	0.44	0.39
	Rear 10mm	0.30	0.10	0.24	0.22	0.07	0.13	0.00	0.00	0.61	0.67
	Left 10mm			0.13		0.00	0.00	0.00	0.00	0.13	0.13
	Right 10mm	0.64	0.00	0.06	0.00	0.07	0.10	0.00	0.00	0.77	0.80
	Bottom 10mm		0.37		0.09	0.00	0.00	0.00	0.00	0.37	0.37
	Top 10mm	0.11		0.19		0.00	0.08	0.00	0.00	0.30	0.38
	Front 15mm	0.09	0.14	0.21	0.13	0.00	0.00	0.00	0.00	0.30	0.30
	Rear 15mm	0.16	0.20	0.24	0.17	0.00	0.00	0.00	0.00	0.40	0.40



## J.7 Graph Results

### LTE B7 Head

#### Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HSL	CHEEK, 0.00	Band 7	1:1	2510.000, 20850	8.08	1.92	38.926

#### Hardware Setup

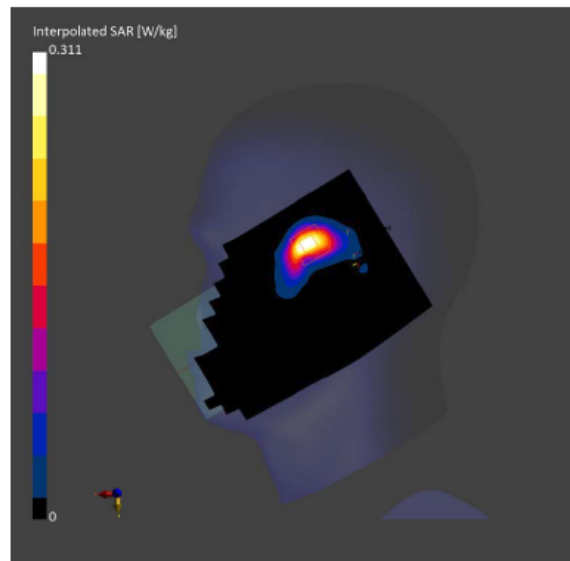
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

#### Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	3.8 x 3.8 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

#### Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.230	0.227
psSAR10g [W/kg]	0.103	0.095
Power Drift [dB]	-0.10	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		76.5
Dist 3dB Peak [mm]		5.6



LTE B7 Body 10mm ANT 4

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE LEFT, 10.00	Band 7	1:1	2510.000, 20850	8.08	1.92	38.926

Hardware Setup

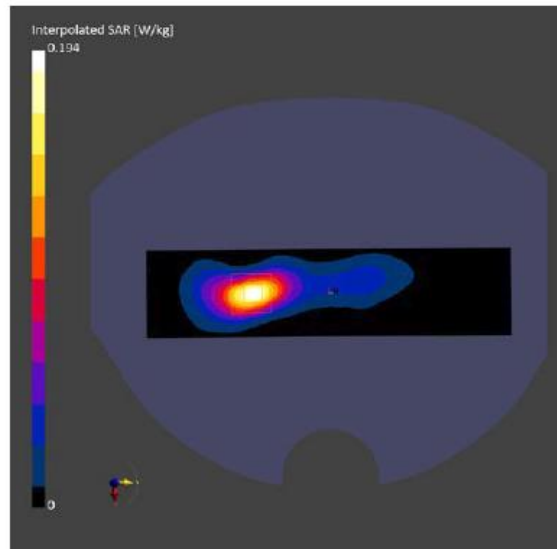
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	48.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	8.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.142	0.147
psSAR10g [W/kg]	0.063	0.064
Power Drift [dB]	0.04	0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		78.9
Dist 3dB Peak [mm]		8.0



LTE B7 Body 15mm ANT 4

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band 7	1:1	2510.000, 20850	8.08	1.92	38.926

Hardware Setup

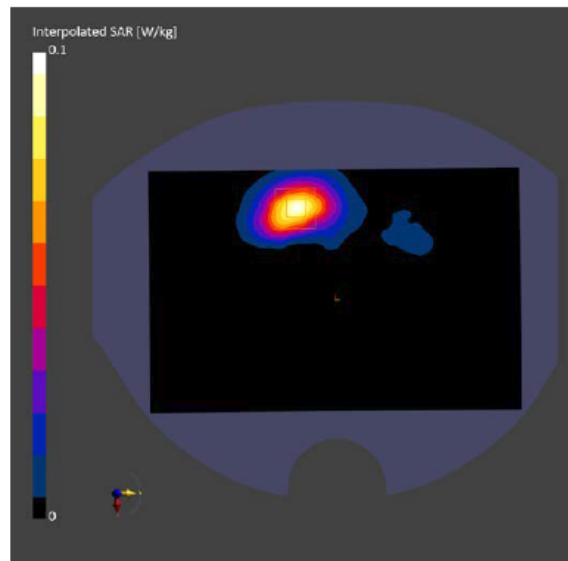
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	Unknown method	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.072	0.072
psSAR10g [W/kg]	0.034	0.033
Power Drift [dB]	-0.02	0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		81.2
Dist 3dB Peak [mm]		9.3



LTE B25 Head

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HSL	CHEEK, 0.00	Band 25	1:1	1882.500, 26365	8.47	1.359	39.372

Hardware Setup

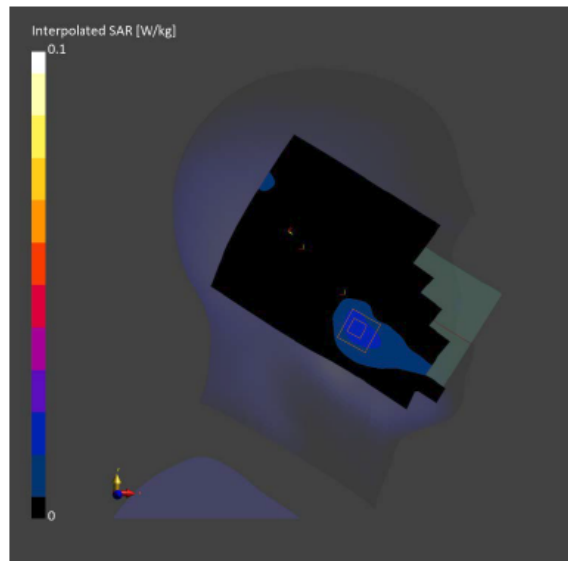
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	Unknown method	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.017	0.021
psSAR10g [W/kg]	0.01	0.013
Power Drift [dB]	0.05	-0.09
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		93.2
Dist 3dB Peak [mm]		11.0



LTE B25 Body 10mm ANT 1

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE BOTTOM, 10.00	Band 25	1:1	1882.500, 26365	8.47	1.359	39.372

Hardware Setup

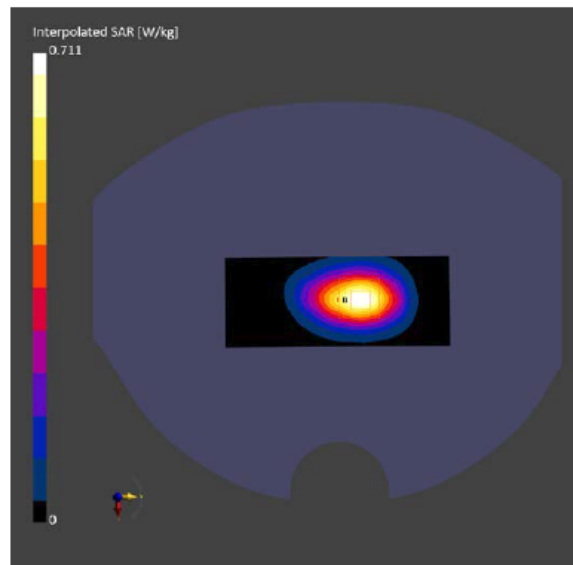
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	48.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	8.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.566	0.561
psSAR10g [W/kg]	0.299	0.298
Power Drift [dB]	0.09	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		82.3
Dist 3dB Peak [mm]		10.8



LTE B25 Body 15mm ANT 1

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band 25	1:1	1882.500, 26365	8.47	1.359	39.372

Hardware Setup

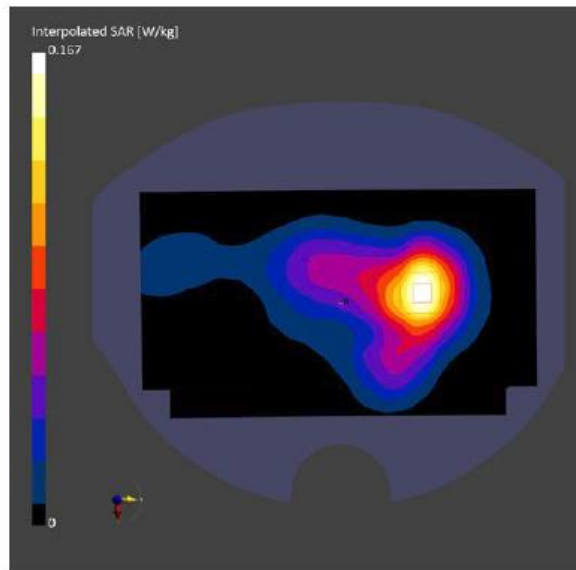
Phantom	TSL Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.139	0.144
psSAR10g [W/kg]	0.080	0.083
Power Drift [dB]	-0.04	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		81.9
Dist 3dB Peak [mm]		15.2





**N25 Head**

**Exposure Conditions**

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HSL	CHEEK, 0.00	Band n25	1:1	1882.500, 376500	8.47	1.359	39.372

**Hardware Setup**

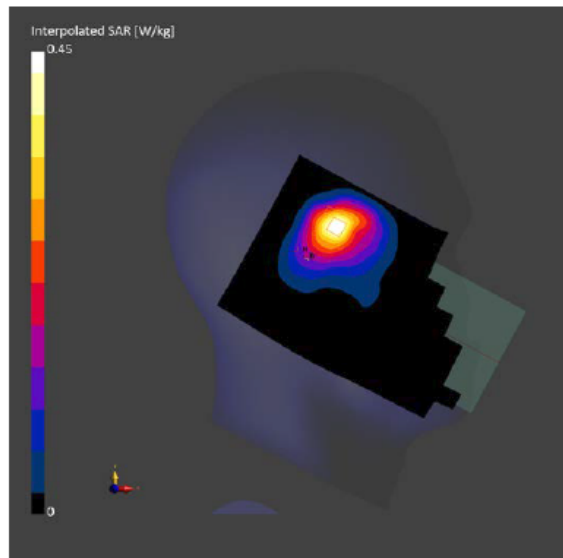
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

**Scan Setup**

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

**Measurement Results**

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.353	0.366
psSAR10g [W/kg]	0.191	0.192
Power Drift [dB]	0.00	-0.08
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		78.9
Dist 3dB Peak [mm]		8.7



N25 Body 10mm ANT 2

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE RIGHT, 10.00	Band n25	1:1	1882.500, 376500	8.47	1.359	39.372

Hardware Setup

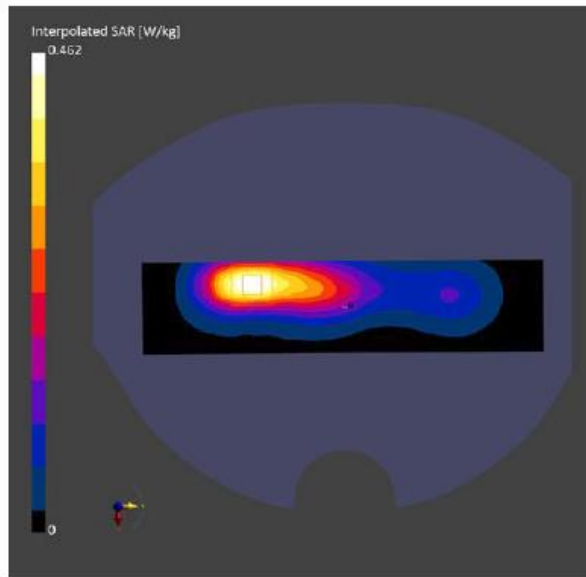
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	48.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	8.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.373	0.376
psSAR10g [W/kg]	0.199	0.192
Power Drift [dB]	0.08	0.08
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		79.6
Dist 3dB Peak [mm]		9.6



N25 Body 15mm ANT 2

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band n25	1:1	1882.500, 376500	8.47	1.359	39.372

Hardware Setup

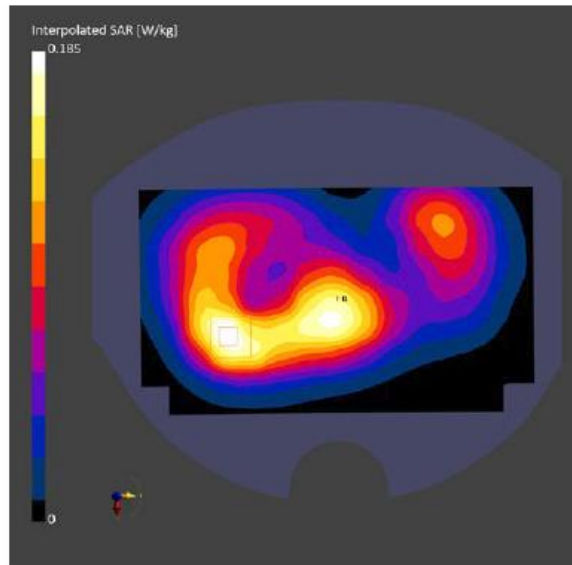
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	0.154	0.165
psSAR10g [W/kg]	0.092	0.093
Power Drift [dB]	-0.05	0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		84.3
Dist 3dB Peak [mm]		15.1



N7 Head

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HSL	CHEEK, 0.00	Band n7	1:1	2535.000, 507000	8.08	1.946	38.903

Hardware Setup

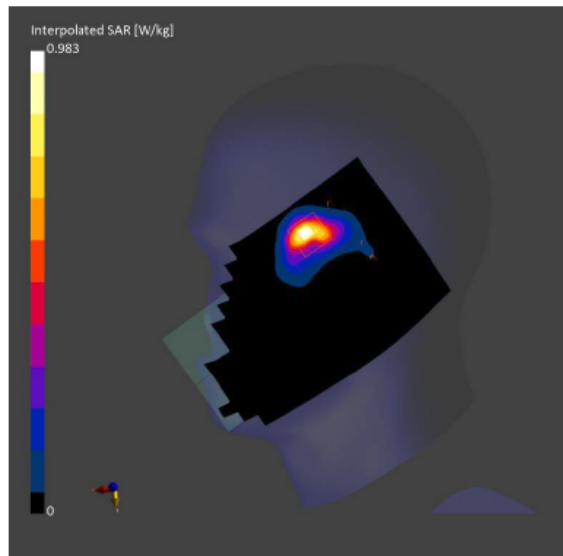
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.681	0.695
psSAR10g [W/kg]	0.299	0.289
Power Drift [dB]	-0.10	-0.14
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.8
Dist 3dB Peak [mm]		5.9



**N7 Body 10mm ANT 4**

**Exposure Conditions**

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 10.00	Band n7	1:1	2535.000, 507000	8.08	1.946	38.903

**Hardware Setup**

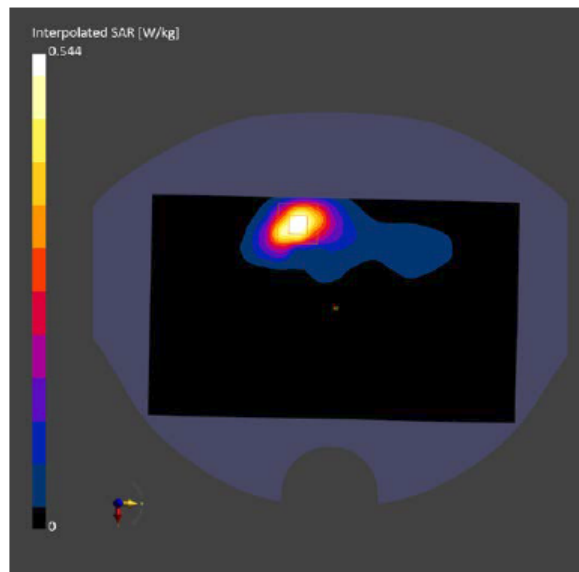
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

**Scan Setup**

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

**Measurement Results**

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.427	0.459
psSAR10g [W/kg]	0.198	0.196
Power Drift [dB]	0.04	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		80.1
Dist 3dB Peak [mm]		7.7



**N7 Body 15mm ANT 4**

**Exposure Conditions**

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band n7	1:1	2535.000, 507000	8.08	1.946	38.903

**Hardware Setup**

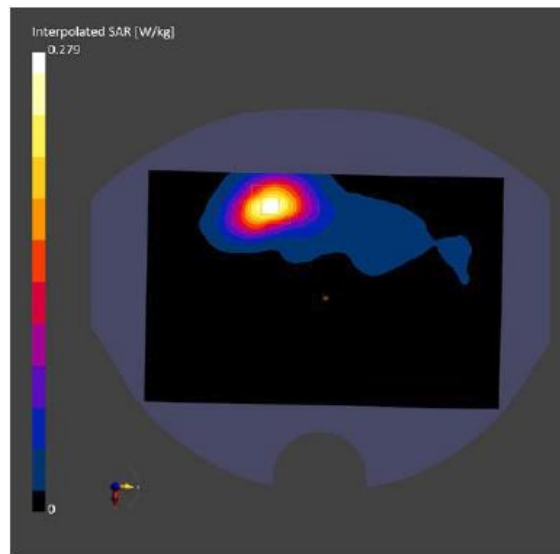
Phantom	TSL Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

**Scan Setup**

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	Unknown method	VMS + 6p
Scan Method	Measured	Measured

**Measurement Results**

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.213	0.214
psSAR10g [W/kg]	0.102	0.103
Power Drift [dB]	-0.17	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		80.5
Dist 3dB Peak [mm]		9.9





N38 Head

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HSL	CHEEK, 0.00	Band n38	1:1	2595.000, 519000	7.9	1.977	38.864

Hardware Setup

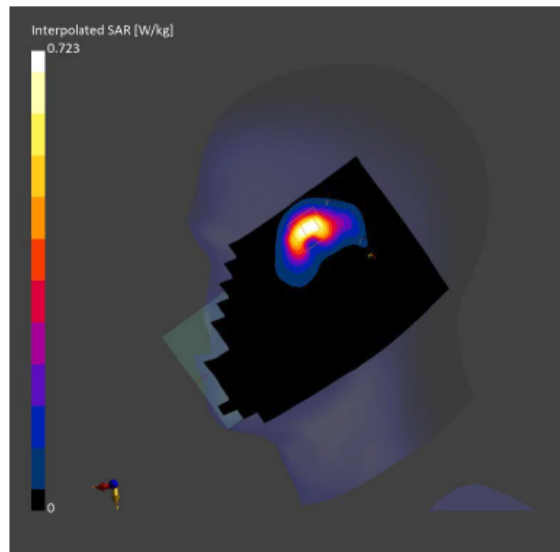
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.528	0.502
psSAR10g [W/kg]	0.237	0.213
Power Drift [dB]	-0.66	0.09
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		76.3
Dist 3dB Peak [mm]		5.7



N38 Body 10mm ANT 4

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 10.00	Band n38	1:1	2595.000, 519000	7.9	1.977	38.864

Hardware Setup

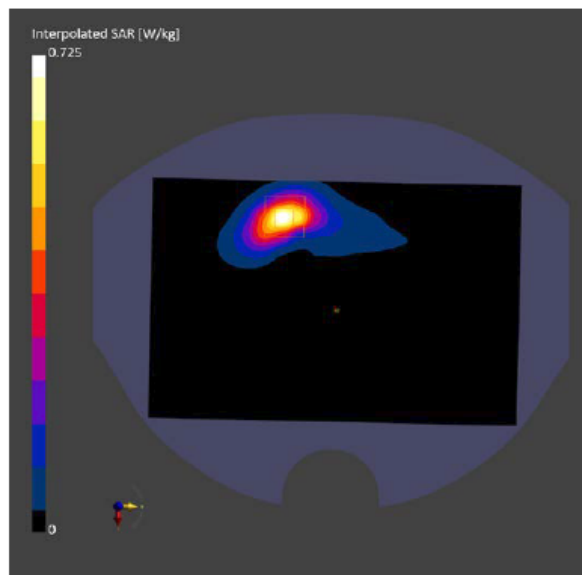
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.525	0.532
psSAR10g [W/kg]	0.228	0.229
Power Drift [dB]	0.07	-0.08
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		79.5
Dist 3dB Peak [mm]		7.7



**N38 Body 15mm ANT 4**

**Exposure Conditions**

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band n38	1:1	2595.000, 519000	7.9	1.977	38.864

**Hardware Setup**

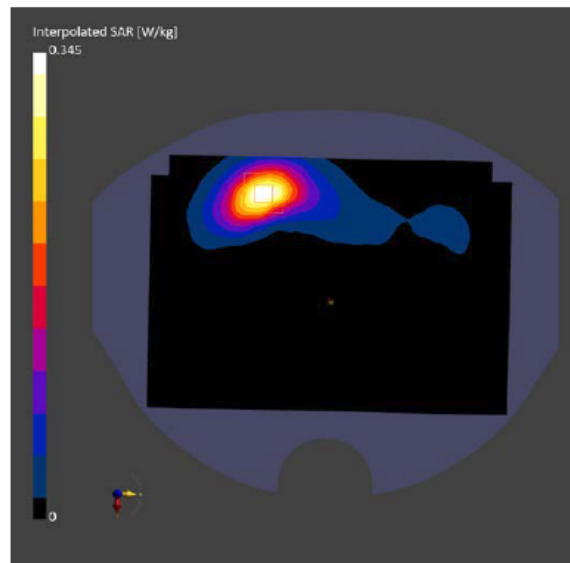
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

**Scan Setup**

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	Unknown method	All points
Scan Method	Measured	Measured

**Measurement Results**

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	0.268	0.254
psSAR10g [W/kg]	0.131	0.121
Power Drift [dB]	4.73	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		80.8
Dist 3dB Peak [mm]		9.9



## J.8 System Validation Results

### 1900MHz

#### Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 5.00	D1900	CW, 0--	1900.000, 50	8.47	1.374	39.31

#### Hardware Setup

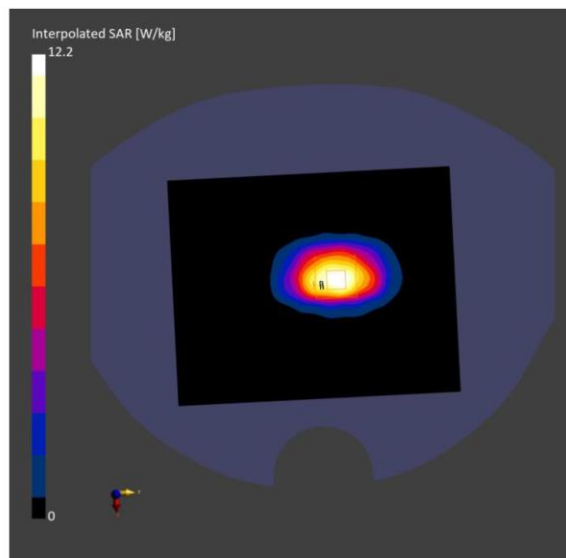
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

#### Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

#### Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-06	2024-02-06
psSAR1g [W/kg]	9.88	9.91
psSAR10g [W/kg]	5.11	5.13
Power Drift [dB]	-0.17	0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		80.0
Dist 3dB Peak [mm]		9.9



## 2600MHz

### Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 5.00	D2600	CW, 0--	2600.000, 50	7.9	1.985	38.815

### Hardware Setup

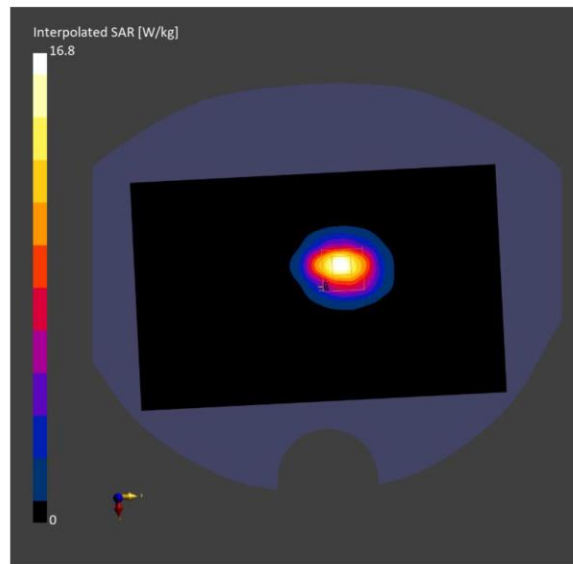
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

### Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 192.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

### Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-25	2024-02-25
psSAR1g [W/kg]	13.85	13.88
psSAR10g [W/kg]	6.3	6.33
Power Drift [dB]	-0.07	0.13
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		78.6
Dist 3dB Peak [mm]		9.0



### 3500MHz

#### Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 5.00	D3500	CW, 0--	3500.000, 50	7.23	2.895	37.413

#### Hardware Setup

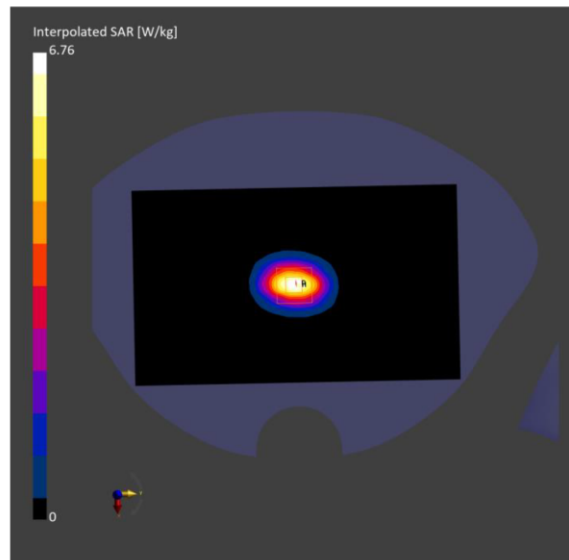
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

#### Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

#### Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-21	2024-02-21
psSAR1g [W/kg]	6.55	6.54
psSAR10g [W/kg]	2.43	2.47
Power Drift [dB]	0.14	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		57
Dist 3dB Peak [mm]		4



### 3700MHz

#### Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Duty Cycle	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 5.00	D3700	CW, 0--	3700.000, 50	7.02	3.105	37.354

#### Hardware Setup

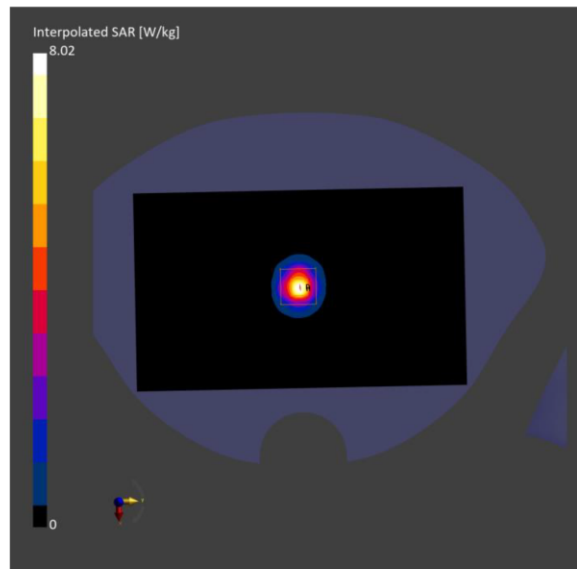
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2114	HBBL-600-10000	EX3DV4 - SN7727, 2023-06-05	DAE4 Sn1807, 2023-05-15

#### Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAJA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

#### Measurement Results

	Area Scan	Zoom Scan
Date	2024-02-28	2024-02-28
psSAR1g [W/kg]	6.94	6.89
psSAR10g [W/kg]	2.58	2.53
Power Drift [dB]	-0.08	0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		70
Dist 3dB Peak [mm]		9





### J.9 System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

**Table J.9-1: System Validation for 7727**

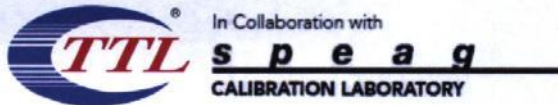
Probe SN.	Liquid name	Validation date	Frequency point	Status (OK or Not)
7727	H650-7000M	July.8,2023	750 MHz	OK
7727	H650-7000M	July.8,2023	900 MHz	OK
7727	H650-7000M	July.8,2023	1450 MHz	OK
7727	H650-7000M	July.8,2023	1750 MHz	OK
7727	H650-7000M	July.9,2023	1900 MHz	OK
7727	H650-7000M	July.9,2023	2100 MHz	OK
7727	H650-7000M	July.9,2023	2300 MHz	OK
7727	H650-7000M	July.11,2023	2450 MHz	OK
7727	H650-7000M	July.11,2023	2600 MHz	OK
7727	H650-7000M	July.11,2023	3500 MHz	OK
7727	H650-7000M	July.11,2023	3700 MHz	OK
7727	H650-7000M	July.11,2023	3900 MHz	OK
7727	H650-7000M	July.12,2023	5250 MHz	OK
7727	H650-7000M	July.12,2023	5600 MHz	OK
7727	H650-7000M	July.12,2023	5800 MHz	OK

## J.10 Probe Calibration Certificate

### Probe 7727 Calibration Certificate

In Collaboration with <b>TTL s p e a g</b> CALIBRATION LABORATORY		中国认可 国际互认 校准 CALIBRATION CNAS L0570	
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2117 E-mail: emf@caict.ac.cn      http://www.caict.ac.cn			
Client <b>CTTL</b>		Certificate No: <b>J23Z60233</b>	
CALIBRATION CERTIFICATE			
Object	EX3DV4 - SN : 7727		
Calibration Procedure(s)	FF-Z11-004-02 Calibration Procedures for Dosimetric E-field Probes		
Calibration date:	June 05, 2023		
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.			
Calibration Equipment used (M&TE critical for calibration)			
Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Power sensor NRP-Z91	101547	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Power sensor NRP-Z91	101548	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Reference 10dBAttenuator	18N50W-10dB	19-Jan-23(CTTL, No.J23X00212)	Jan-25
Reference 20dBAttenuator	18N50W-20dB	19-Jan-23(CTTL, No.J23X00211)	Jan-25
OCP DAK-3.5	SN 1040	18-Jan-23(SPEAG, No.OCP-DAK3.5-1040_Jan23)	Jan-24
Reference Probe EX3DV4	SN 7517	27-Jan-23(SPEAG, No.EX-7517_Jan23)	Jan-24
DAE4	SN 1555	25-Aug-22(SPEAG, No.DAE4-1555_Aug22)	Aug-23
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	14-Jun-22(CTTL, No.J22X04182)	Jun-23
Network Analyzer E5071C	MY46110673	10-Jan-23(CTTL, No.J23X00104)	Jan-24
Reference 10dBAttenuator	BT0520	11-May-23(CTTL, No.J23X04061)	May-25
Reference 20dBAttenuator	BT0267	11-May-23(CTTL, No.J23X04062)	May-25
	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	
Issued: June 09, 2023			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2117  
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

**Glossary:**

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization $\Phi$	$\Phi$ rotation around probe axis
Polarization $\theta$	$\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i $\theta=0$ is normal to probe axis

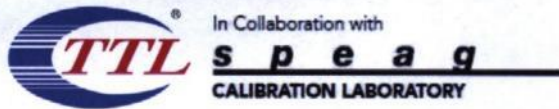
Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Methods Applied and Interpretation of Parameters:**

- NORM<sub>x,y,z</sub>:** Assessed for E-field polarization  $\theta=0$  ( $f \leq 900\text{MHz}$  in TEM-cell;  $f > 1800\text{MHz}$ : waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub>\* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>:** DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR:** PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>:** A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800\text{MHz}$ ) and inside waveguide using analytical field distributions based on power measurements for  $f > 800\text{MHz}$ . The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub>\* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50\text{MHz}$  to  $\pm 100\text{MHz}$ .
- Spherical isotropy (3D deviation from isotropy):** in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset:** The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle:** The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2117  
 E-mail: emf@caict.ac.cn http://www.caict.ac.cn

## DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7727

### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.47	0.48	0.38	$\pm 10.0\%$
DCP(mV) <sup>B</sup>	102.0	105.2	100.5	

### Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max Dev.	Max Unc <sup>E</sup> (k=2)
0	CW	X	0.0	0.0	1.0	0.00	168.3	$\pm 2.5\%$	$\pm 4.7\%$
		Y	0.0	0.0	1.0		172.7		
		Z	0.0	0.0	1.0		145.7		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.45	60.00	5.24	10.00	60	$\pm 3.6\%$	$\pm 9.6\%$
		Y	1.58	60.61	5.86		60		
		Z	1.36	60.00	5.66		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	46.00	72.00	7.00	6.99	80	$\pm 2.2\%$	$\pm 9.6\%$
		Y	0.80	60.00	4.25		80		
		Z	6.00	68.00	7.00		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.00	69.85	39.37	3.98	95	$\pm 3.0\%$	$\pm 9.6\%$
		Y	0.07	160.00	18.62		95		
		Z	0.00	159.90	19.34		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.00	113.74	99.96	2.22	120	$\pm 3.3\%$	$\pm 9.6\%$
		Y	0.00	64.51	42.10		120		
		Z	0.51	85.10	0.67		120		
10387-AAA	QPSK Waveform, 1 MHz	X	0.89	160.00	87.59	1.00	150	$\pm 3.1\%$	$\pm 9.6\%$
		Y	20.00	142.19	41.78		150		
		Z	20.00	154.70	47.89		150		
10388-AAA	QPSK Waveform, 10 MHz	X	20.00	134.83	42.45	0.00	150	$\pm 2.4\%$	$\pm 9.6\%$
		Y	11.01	103.50	28.52		150		
		Z	20.00	115.38	32.38		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.75	83.44	29.81	3.01	150	$\pm 1.4\%$	$\pm 9.6\%$
		Y	1.92	69.46	20.49		150		
		Z	1.88	69.78	21.20		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	5.32	75.63	21.26	0.00	150	$\pm 3.3\%$	$\pm 9.6\%$
		Y	4.17	69.30	17.33		150		
		Z	4.31	70.05	17.92		150		

Note: For details on UID parameters see Appendix

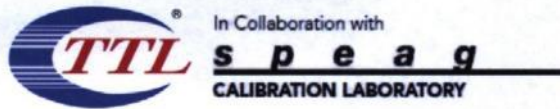
The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 5).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2117  
 E-mail: emf@caict.ac.cn      http://www.caict.ac.cn

## DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7727

### Sensor Model Parameters

	C1 fF	C2 fF	$\alpha$ V <sup>-1</sup>	T1 ms.V <sup>-2</sup>	T2 ms.V <sup>-1</sup>	T3 ms	T4 V <sup>-2</sup>	T5 V <sup>-1</sup>	T6
X	7.64	55.26	34.90	0.92	0.00	4.90	0.00	0.01	1.01
Y	7.95	57.30	33.78	2.12	0.00	4.90	0.02	0.03	1.01
Z	7.87	57.93	35.18	1.93	0.00	4.90	0.00	0.00	1.01

### Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	156.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2117  
 E-mail: emf@caict.ac.cn http://www.caict.ac.cn

## DASY/EASY – Parameters of Probe: EX3DV4 – SN:7727

### Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unct. (k=2)
750	41.9	0.89	10.31	10.31	10.31	0.15	1.35	±12.7%
900	41.5	0.97	9.97	9.97	9.97	0.16	1.35	±12.7%
1450	40.5	1.20	8.97	8.97	8.97	0.12	1.33	±12.7%
1750	40.1	1.37	8.65	8.65	8.65	0.20	1.09	±12.7%
1900	40.0	1.40	8.47	8.47	8.47	0.24	1.05	±12.7%
2100	39.8	1.49	8.45	8.45	8.45	0.22	1.11	±12.7%
2300	39.5	1.67	8.30	8.30	8.30	0.61	0.66	±12.7%
2450	39.2	1.80	8.08	8.08	8.08	0.55	0.72	±12.7%
2600	39.0	1.96	7.90	7.90	7.90	0.41	0.86	±12.7%
3300	38.2	2.71	7.44	7.44	7.44	0.38	1.02	±13.9%
3500	37.9	2.91	7.23	7.23	7.23	0.42	1.00	±13.9%
3700	37.7	3.12	7.02	7.02	7.02	0.41	1.00	±13.9%
3900	37.5	3.32	6.91	6.91	6.91	0.35	1.35	±13.9%
4100	37.2	3.53	6.82	6.82	6.82	0.30	1.38	±13.9%
4200	37.1	3.63	6.72	6.72	6.72	0.30	1.50	±13.9%
4400	36.9	3.84	6.62	6.62	6.62	0.30	1.50	±13.9%
4600	36.7	4.04	6.54	6.54	6.54	0.40	1.30	±13.9%
4800	36.4	4.25	6.55	6.55	6.55	0.30	1.80	±13.9%
4950	36.3	4.40	6.20	6.20	6.20	0.40	1.38	±13.9%
5250	35.9	4.71	5.77	5.77	5.77	0.40	1.45	±13.9%
5600	35.5	5.07	5.25	5.25	5.25	0.45	1.40	±13.9%
5750	35.4	5.22	5.33	5.33	5.33	0.40	1.50	±13.9%

<sup>C</sup> Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

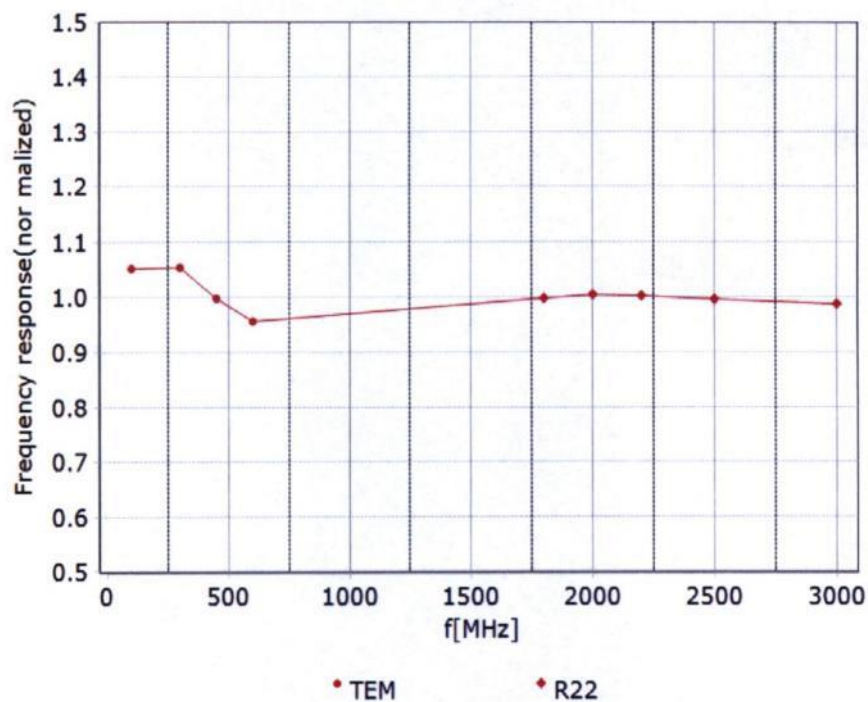
<sup>F</sup> At frequency up to 6 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2117  
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

### Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 7.4\%$  ( $k=2$ )



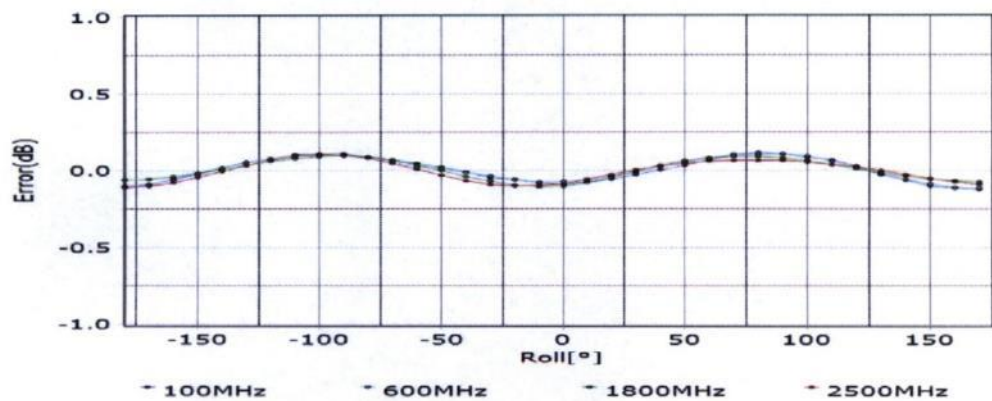
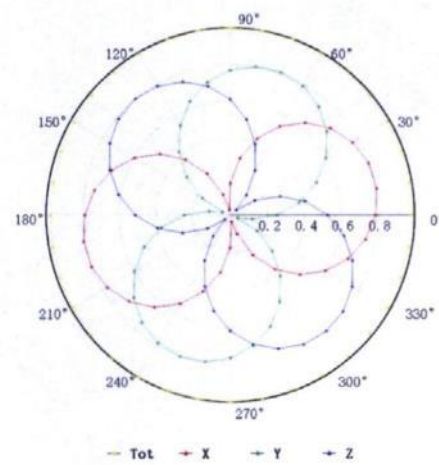
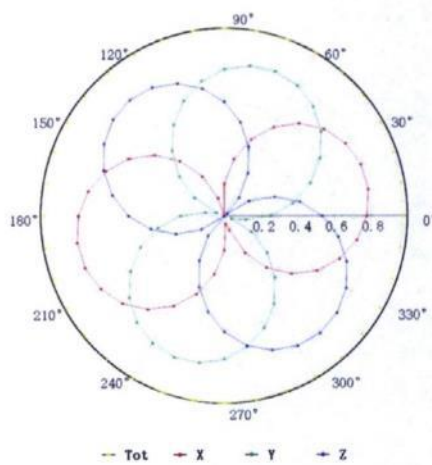


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2117  
 E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

### Receiving Pattern ( $\Phi$ ), $\theta=0^\circ$

**f=600 MHz, TEM**

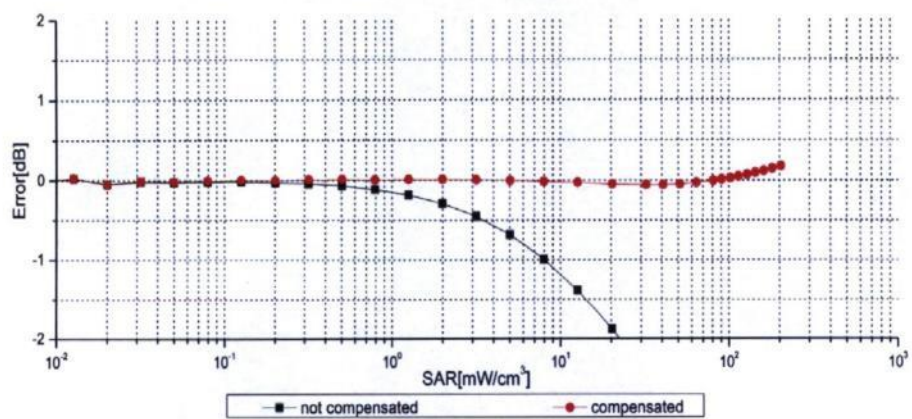
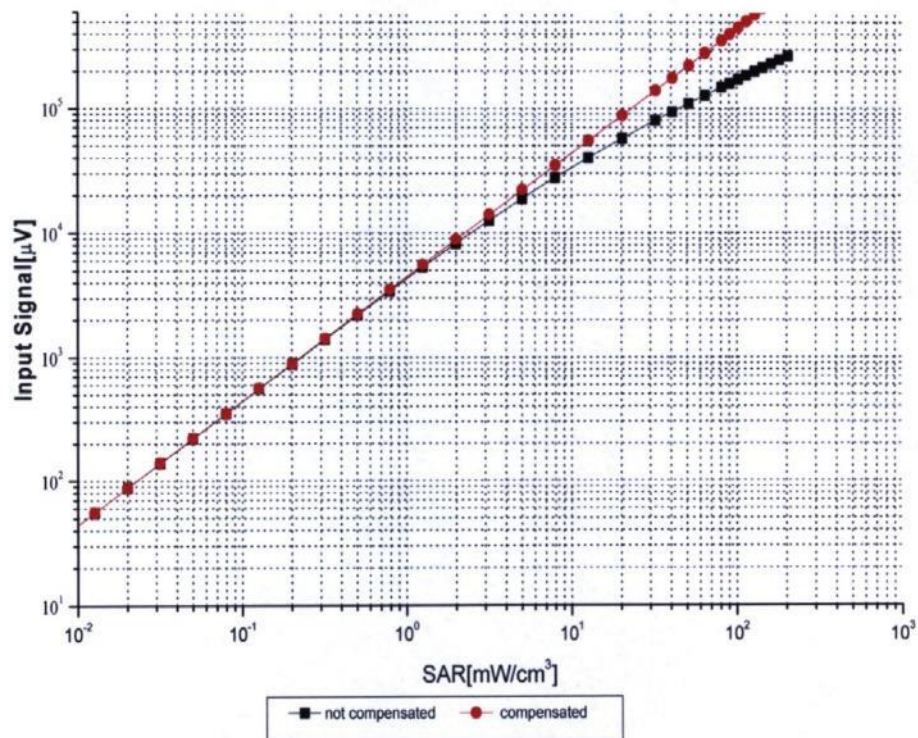
**f=1800 MHz, R22**



Uncertainty of Axial Isotropy Assessment:  $\pm 1.2\%$  ( $k=2$ )

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2117  
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

### Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f = 900 MHz)



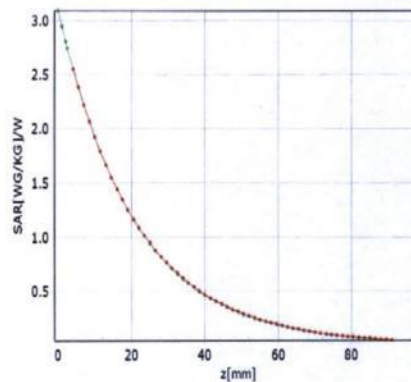
Uncertainty of Linearity Assessment: ±0.9% (k=2)

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2117  
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

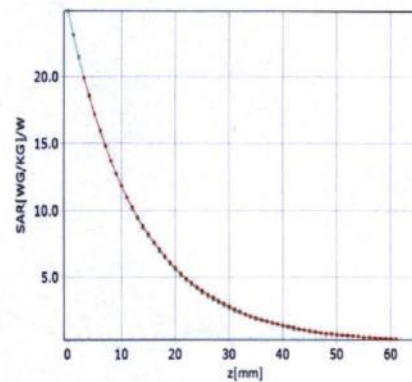
## Conversion Factor Assessment

f=750 MHz,WGLS R9(H\_convF)

f=1750 MHz,WGLS R22(H\_convF)

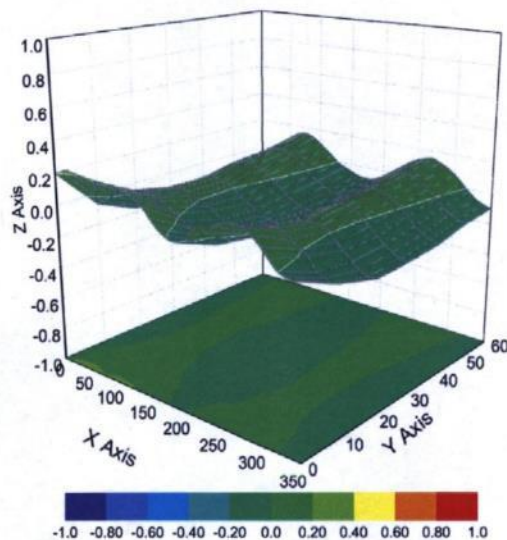


\* analytical \* measured



\* analytical \* measured

## Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment:  $\pm 3.2\%$  ( $k=2$ )